REPORT RESUMES

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SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION.

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #1 -- Sensitivity to Challenging Problems

"Nothing is more interesting for humans than human activity - and the most characteristically human activity is solving problems, thinking for a purpose, devising means to some desired end."

George Polya

"The solution of problems is the most characteristic and peculiar sort of voluntary thinking."

William James

NAME ____

SCHOOL ____

DATE ____

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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(1)

A problem is a perplexing situation. It is only because someone sees conflict in a situation that it is labeled a ____________________.

problem, perplexity, challenge, dilemma, etc.

(2)

A situation may perplex one person or group and not perplex ____________________ person or group.

another, every, a different, etc.

(3)

Problem-solving may be considered the process of human adaptation to cultural life. This means adapting ourselves to our environment, -- as well as ____________________ our environment to suit us.

adapting, adjusting, changing, etc.

(4)

Throughout our lives, this process of adapting ourselves and our ______________ is a continuing challenge.

environment, surroundings, etc.

(5)

Creating deliberate means of treating perplexing situations is therefore an opportunity, -- a challenge. Hence we might call a problem a ____________.

challenge, an opportunity, a chance to accomplish something, etc.

(6)

The means or workable ways of meeting a challenge or problem are only temporary measures that change as our needs ____________________.

change, vary, increase, etc.

(7)

Thus each of these means of treating perplexing situations becomes in itself another ____________________.

challenge, opportunity, problem, etc.

(8)

Sometimes our long-established attitudes prevent us from seeing an opportunity or challenge in a situation. If we can see all the elements, then we are less likely to see a situation as discouraging -- more likely to see it as

______________________.

challenging, encouraging, enticing, etc.

State briefly below, a "challenge" that you face in your life.

(10)

Sometimes it is hard to realize all the challenges that we face because we are used to thinking of challenges as conflicts and we tend to blind ourselves to some of our ________________ in order to feel more comfortable.

conflicts, problems, inadequacies, emotions, etc.

(11)

If we were to reverse the procedure, and think of problems as "challenges" or "opportunities," we might then be less inclined to ignore so many of these

______________________.

challenges, opportunities, problems, etc.

List below some other challenges which you face in your life, -- in your attempts to achieve a more rewarding, fuller life.

"No question is so difficult to answer as that to which the answer is obvious."

George Bernard Shaw
Dramatist, Critic and Novelist

"Problems are like weeds; the more you ignore them, the faster they grow!"

Bert J. Decker
Air Force Officer

A checklist can be helpful in discovering additional challenges in your life. Apply the following interrogations and see how many more challenges you can think of. List challenges ("problems") that you think of as you read the stimulators. As you consider each interrogation in the left column, apply to it any or all of the words in the right column. For example, the word "house" in the left column, when related to the word "complications" in the right column, might suggest the challenge, "How to speed up the cleaning of my room." "Homework" on the left, when related to "economy" on the right, might suggest, "How to save time in doing homework." And so on.

List anywhere on the page the different challenges that are suggested to you. You may discover many new challenges as you play with the word combinations. Work on this page now; then tear it out and keep it.

friends?

family?

neighbors?

church?

house?

school?

homework?

graduation?

car or transportation?

social life?

personality?

hobbies & leisure time?

finances? (money)

plans & goals?

hopes & desires?

career?

improvements?

happiness & comfort?

misunderstandings?

complications?

waste or inefficiencies?

bottlenecks & routines?

attitudes?

anxieties or fears?

anger or disgust?

pet peeves & complaints?

safety?

economy?

performance?

durability?

appearance?

popularity?

Take this page with you after you finish!

This session has dealt with the matter of finding or recognizing challenging problems, not with solving them. However, try to list several ways or means of meeting one of the challenges you listed on pages 9, 12 and 14. Use the next sheet for this purpose.

CHALLENGE (state here):

Possible ways of meeting this challenge (list ideas below):

Take this page with you after you finish it!

In the next session you will begin to explore creative approaches to the handling of challenging problems. Meanwhile, spend as much time as you still have available on the remaining pages. Do this in whatever order you wish.

Read the following; then follow the newsman's suggestion.

One of the newsmen on the NBC-TV "Today" program used to write obituaries for a newspaper. It was a tedious chore. One day he idly typed his own name across the top of a blank piece of paper. Realizing that it looked like another assignment for the obit column, he became intrigued with the idea of composing his own obituary. Suppose he did have a chance to write his own final review, what would he want said about himself?

He filled three pages. He wrote things he had always wanted to do as though they had already been accomplished. Some were personal items; some community projects. "The late lamented," he wrote, "started studying Spanish at the age of 32 and in two years became fluent in its use. He helped organize a Boy Scout troup and took an active part in local politics." He went on translating latent desires into realities.

The next day he enrolled in a language course and visited Scout headquarters. And so it went. He had his obituary as his goal -- and he set about making it come true.

Try out the idea: write a page or so. You shouldn't find it a bit morbid. Just one suggestion: Don't leave it lying around -- might be difficult to explain. (From "This is My Life," Dave Garroway, in Good Housekeeping Magazine)

Use page 19 for your imagined obituary. Or if you prefer, let it be the imagined autobiography you will write in the year 2000! Then, as explained, tear it out and keep it with you!

Take this page with you!

A famous quotation from President John F. Kennedy's inaugural speech was, "Ask not what your country can do for you, but what you can do for your country."

Ask not what your parents, fraternity, school, employer, country, etc. can do for you, but what you can do for them!

List below, challenges that the above suggests to you. (Example: How might I show my appreciation to my parents?)

List challenges that have to do with the following:

STUDENT ACTIVITIES:

List challenges that have to do with the following:

THE OPPOSITE SEX:

List challenges that have to do with the following:

____________________________________(You name it! -- any aspect of your life that you would like to consider.)

QUESTIONNAIRE

1. What did you find most helpful about the session?

2. What did you find least helpful about the session?

3. What did you like most about the session?

4. What did you like least about the session?

5. Was your progress through the session encouraging to you?

6. Did anything discourage you as you proceeded through the session? If so, what?

7. Do you have any suggestions for improving the session (to make it more interesting, more effective, etc.)? If so, please write these and any other comments on the reverse side.

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Session #2 -- Recognizing the Real Problem

"An idea is a method of evading, circumventing, or surmounting through reflection, obstacles that otherwise would have to be attacked by brute force."

John Dewey

NAME ______________________________

SCHOOL ______________________________

DATE ____________________

---

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__Devil of a mess__: An instructor in an Eastern college uses creative approaches to challenging problems in teaching students to become junior administrators. One of his students lost his job after having completed the course. He went to see the instructor, who asked him what had happened. The student replied, "After taking your course in how to meet challenges, I was well prepared. If they had only given me a problem to tackle, I could have licked it with no trouble at all. Instead they gave me nothing but one devil of a mess."

(2)

When we first become aware of challenging problems, we do not see them as clearly defined, but more as a "mess." However, as John Dewey long ago stressed, a problem is half-solved if it is properly ______________________.

defined, stated, approached, etc.

Consider the following example of the importance of problem-definition:

Arriving at a meeting about 15 minutes ahead of time, a speaker noticed that no lectern (lecturer's stand) had been provided for his presentation. He quickly defined the challenge as "Where might I get a ____________________ in a hurry?"

lectern, speaker's stand, etc.

(4)

However, in asking himself why he needed a lectern, he realized that it was because he felt uncomfortable without a place to rest his ________________________ during the talk.

notes, papers, arms, etc.

(5)

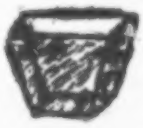
He recognized, therefore, that the problem that challenged him was not, "How to find a lectern" but, "How ______________________________."

"How to find a comfortable way to hold my notes."

"How to be at ease while speaking without a lectern."

"How to speak without putting my notes on a lectern."

etc.

With his more realistic recognition of the challenge, he observed a rectangular wastebasket. 

By visualizing this basket as being placed on its side upon a table, he immediately discovered something to ________________ as a lectern.

use, substitute, serve, etc.

A chemical company was faced with the challenging problem of determining the weights of barrels of gun powder in order to calculate freight charges. The barrels were so heavy that three men were needed to lift them onto the scale. The management considered numerous means such as lowering the scale, building a ramp, using pulleys, etc. Finally it was decided to start at the beginning and look for the actual problem.

Originally, the challenge had been stated as, "In what ways might we get the barrels onto the scale." How else might the challenge have been worded? State below:

"In what ways might we determine the weight of the barrels?"

"In what ways might we get the scale under the barrels?"

"In what ways might we make the barrels lighter or easier to handle?"

etc.

(8)

If you had asked, "Why do we want to get the barrels onto the scale?" you probably would have answered, "To find out the weight." This might lead you to state the challenge as, "How to determine the weight." Another "why" question -- why do we want to determine the weight -- might lead to the realization that what you actually wanted to determine was the __________ __________.

freight charge, shipping cost, etc.

(9)

Thus, you could have stated this challenge as "In what ways might we determine the freight charge?" You may have found still other ways to ________________ the problem.

define, state, approach, solve, meet, etc.

Management finally did state the problem as "In what ways might we determine the freight charges?" With this restatement, they realized they could establish standard weights for filled barrels of various sizes. Thus future barrels did not even have to be ________________________.

weighed, placed on the scale, etc.

(11)

"Why?" is a key question in attempting to reach an adequate recognition of a

__________________________.

(12)

We will eventually come to the basic definition of a problem if, after every attempted statement of the problem, we ask " ____________?"

why, for what reason, etc.

There is an old story about a delivery man who mistakenly set a huge carton down in the middle of an office, and walked away, never to return. For the first few days, people grumbled as they walked around it. In time they got used to it, and for months continued to walk around the carton as if it were part of the building. Everyone forgot to ask ____________________.

why, what it was doing there, etc.

Let us try to broaden our thinking about challenges and our actual goals that are implicit in them. On this and the next few pages, ask "why" of each of the problems listed. After answering "why," restate each problem as a new question that implies more basic goals. (One example is partially completed below. Fill in the blanks required.)

ORIGINAL CHALLENGE: "In what ways might we make a better mousetrap?"
One answer that you might get by asking, "why?" is this: To ______________ mice more effectively.

POSSIBLE BROADER RESTATEMENT OF CHALLENGE: "In what ways might we ______________ mice more effectively?"
Answer you might get by asking, "why?": To get ______________ of mice; or To keep our homes free __________ __________.

POSSIBLE STILL BROADER RESTATEMENT OF CHALLENGE: "In what ways might we get _______ of mice;" or "In what ways might we keep our homes free __________ __________?"

etc.

trap, catch, kill, etc.

trap, catch, kill, etc.
rid, our houses cleared, etc.
from mice, of pests, etc.

rid, our houses cleared, etc.
from mice, of pests, etc.

Original statement of challenge: "In what ways might we improve the outdoor grill?"

Possible broader restatements after asking, "why": **(Fill in below.)**

In what ways might we ......

In what ways might we ......

In what ways might we ......

etc.

"In what ways might we better enjoy outdoor cooking?"

"In what ways might we cook better outdoors?"

"In what ways might we improve outdoor cooking and eating?"

etc.

Original statement of challenge: "Ways to decorate the house effectively for Christmas."

Possible broader restatements after asking, "why": (Fill in below.)

Ways to ......

Ways to ......

Ways to ......

etc.

"Ways to create the real spirit of Christmas at home."

"Ways to make visitors feel in the spirit of Christmas."

"Ways to beautify the house or make it cheery for Christmas."

etc.

Original statement of problem: "How to get the lid off the jar."

Possible broader restatements after asking, "why": (Fill in below.)

How to ......

How to ......

etc.

"How to get the jar opened."

"How to get the contents out."

etc.

Another means of reaching helpful new definitions of challenges is to change the verb in a given statement. For example, "How to toast bread" may become "How to brown and dehydrate bread." The latter statement has enabled several completely new toaster designs to be conceived by spelling out the real ________________ of "toasting" the bread.

purpose, meaning, objective, method, etc.

Changing the verb in a statement of a challenge can help to change our mental "set" or outlook regarding the challenge. How to park cars may become how to store cars. The latter statement has been helpful in freeing the mind from the ______________ method of driving cars into ground-level lots.

old, customary, conventional, standard, obvious, troublesome, etc.

(20)

This less typical way of thinking about the problem would be more likely to lead to the newer pigeon-hole or bee-hive parking which utilizes the fork-lift arrangement for ____________________ many heavy objects in warehouses.

storing, piling, moving, etc.

John E. Arnold, late Professor of Creative Engineering, discussed the matter of broadening the statement of a problem as follows:

"Knowing what you are looking for helps you to recognize it when you see it. But in the case of innovation, how do you know what you are looking for? You don't unless you state your problem so broadly, so basically, so all inclusively and generically, that you do not preclude even the remotest possibility -- so that you do not pre-condition your mind to a narrow range of acceptable answers."

Arnold thus emphasized the need to state the definition of the problem in the ______________ possible way in the early stages.

broadest, most basic, most comprehensive, etc.

"The mere formulation of a problem is far more often essential than its solution, which may be merely a matter of mathematical or experimental skill. To raise new questions, new possibilities, to regard old problems from a new angle requires creative imagination and marks real advances in science."

Albert Einstein
Physicist

Let us review this matter of broadening the statement of a challenge with the following exercise:

"A small church congregation of limited financial means faced the problem of repainting its historic old frame church in time for its centennial celebration. To keep down costs, the men volunteered to do the painting during their spare time. Many weeks later, with the anniversary date fast approaching, little or nothing had been done. It became evident to the harassed Repair Chairman that he would have to act fast."

List various interpretations of what the challenge is. Begin each statement with "How to" or "Ways to." Keep asking "why" to get at more basic aspects.

Example: "How to get the men started?" or "Ways to create interest in the painting project."

Here is a summary of the various ways you may have posed this challenge, from the relatively narrow to the relatively broad:

a. "Ways to get the men started." If "why" is asked of this question, another plateau for viewing the challenge is arrived at:

b. "Ways to get the men to fulfill their pledges." If "why" is now asked, a new, broader question becomes:

c. "Ways to get the church painted in time." If "why" is again asked, an even broader viewpoint evolves:

d. "Ways to make the church attractive for the centennial celebration." If still another "why" is asked, a still broader viewpoint might be:

e. "Ways to strengthen the impact of the church on the community."

etc.

(24)

The kind of ideas which might be created in dealing with the problem would hinge upon which way the question is ______________________.

worded, stated, phrased, viewed, asked, etc.

(25)

The Repair Chairman may still decide that the problem to approach is the relatively narrow version, "How to get the men started;" however, he will have enriched his understanding of this goal by having considered the possible broader ______________ of the challenge.

definition, statement, aspects, interpretation, etc.

(26)

Therefore, his thinking won't be inhibited by too ________________ a viewpoint regarding the realities of the situation.

narrow, restricted, etc.

(27)

The broader approaches will include many different possibilities which he might not have conceived if he had ____________ his thinking just to "getting the men started."

limited, restricted, narrowed, etc.

The Repair Chairman ultimately met his challenge in an interesting and effective way. He carefully laid out equal areas for the volunteers and painted each man's name in large letters in the middle of his area. Each volunteer hurriedly lived up to his pledge and the church soon glistened under its new paint.

Let us consider another aspect of broadening the definition of a challenge -- wording it in a way that is conducive to idea-finding. The student-editor of a school newspaper found that one of his reporters was proving to be unsatisfactory. He, therefore, was considering the dilemma, "Should or shouldn't I dismiss the reporter?" This might well seem to be the ________________________ he faced.

challenge, dilemma, problem, issue, etc.

(29)

Probably neither of those two alternatives was completely satisfactory to him; otherwise there would be no ____________________ in his mind.

question, problem, doubt, etc.

(30)

A statesman once said, "We intend to have a wider choice than humiliation or all-out nuclear war." Neither of the ________________ is acceptable.

alternatives, choices, solutions, two, etc.

(31)

To have a wider choice than "dismiss" or "don't dismiss," the editor must restate his challenge in such a way as to permit him to consider many more ____________.

alternatives, possibilities, ideas, solutions, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(32)

Notice that his question, "Should I dismiss the reporter?" is worded for decision-finding, not for idea-finding. If we ask "why" should we dismiss the reporter, we might answer, "He's not meeting deadlines; he is indifferent," etc. Thus, the real challenge, stated for idea-finding, might be:

"How might I ____?"

"How might I get the reporter to work effectively and cooperatively?"

"How might I overcome his indifference, get him interested, etc.?"

"How might I encourage him to do better?"

etc.

(33)

To broaden this challenge further you might ask, "In what ways can I get this reporter's job done effectively and cooperatively?" This question would serve to ________________________ the definition still further and thus allow for a greater range in idea-finding.

broaden, expand, etc.

(34)

This broadened definition would call for thinking up possibilities other than just dealing with the ______________________ himself.

reporter, individual, etc.

(35)

Many areas of exploration (other than the initial question of whether or not to dismiss the reporter) are suggested by each of the broadened statements of the challenge.

The final wording of the problem for creative attack might still have to do with the original question of whether or not to ____________________ the reporter.

dismiss, replace, etc.

(36)

But even this possible definition of the problem could be adapted into a question that allows more than just two ______________________.

alternatives, answers, etc.

(37)

"Should I dismiss the reporter?" allows only two possibilities: ____________________

or ____________________.

yes, I should, etc.

no, don't dismiss him, etc.

(and perhaps maybe!)

A more creative approach might be: "In what ways might I dismiss the reporter with the _______________ possible repercussions?"

least, fewest, minimum, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(39)

The latter approach does not call for an "either-or" answer; it calls for a multitude of _________________ as leads to solution.

ideas, alternatives, answers, schemes, etc.

(40)

Thus, besides the technique of broadening a problem-statement, the second aspect to consider in analyzing the statement is this:

Can it be worded more effectively for _______-finding?

idea, alternative, etc.

Consider the question "Should I get married or go to graduate school?" To state this for a creative approach, you might reword the problem something like this: "What alternative ___________ can I now think of to insure success in my future married life?"

ways, ideas, actions, etc.

"Should I enlist?", when stated for a creative approach, becomes something like: (Restate below.)

In what ways might I ......

"In what ways might I prepare for my military obligations and look beyond?"

"In what ways might I get the most out of a stint in the service?"

"In what ways might I learn the advantages and disadvantages of enlisting?"

"In what ways might I serve both my country and myself?"

etc.

(43)

When you have stated your problem in its broadest sense, and worded it properly for idea-finding, it is as if you were on top of a pinnacle from which you would be more likely to be able to see all possible approaches toward an effective

______________________.

solution, answer, means, etc.

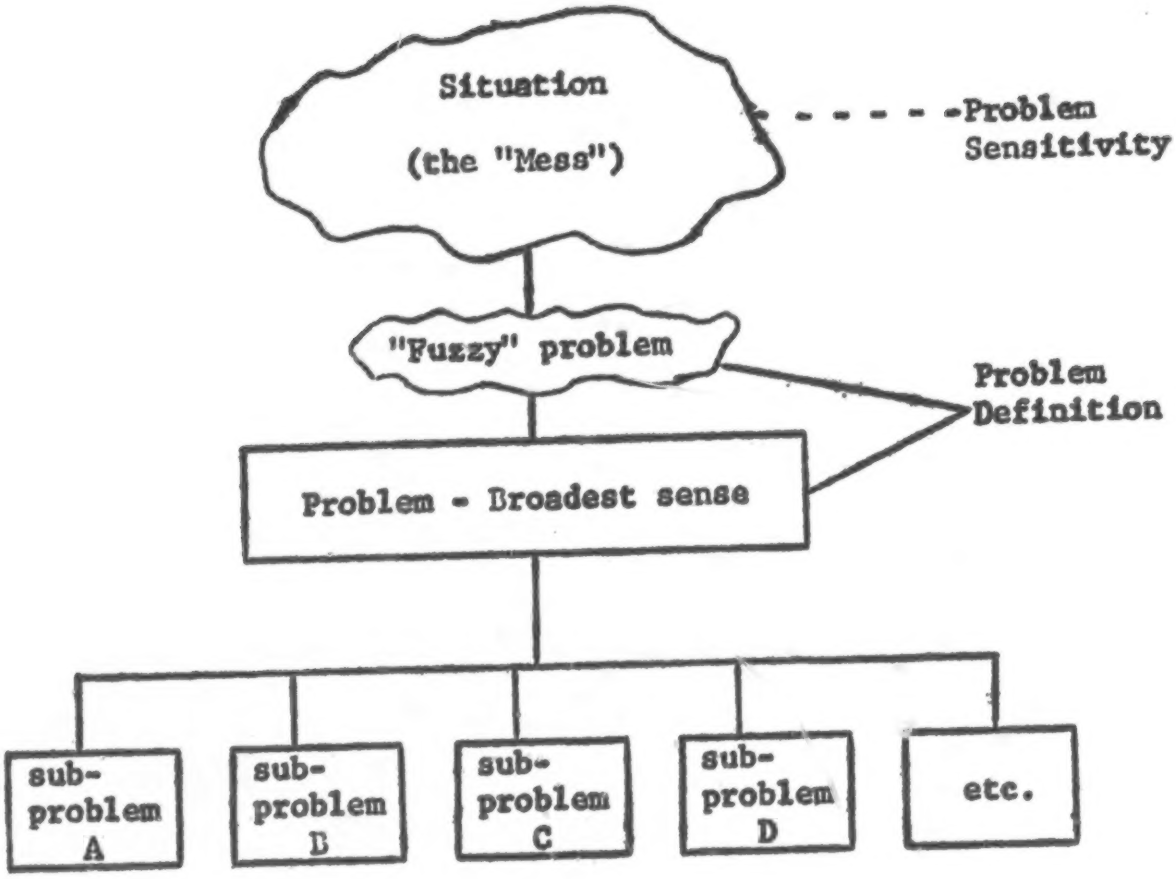
(44)

If you don't look over the entire panorama of approaches, you may overlook the best route to an effective means of handling your ____________________.

challenge, problem, etc.

You start out in any perplexing situation with a "mess," you find the "fuzzy" challenge within the "mess," and then you state the ____________________ as broadly as possible. The broad problem then breaks down into a number of sub-problems. Study the illustration on the next page; then move on to page 47.

challenge, problem, etc.


Situation
(the "Mess")
Problem Sensitivity
"Fuzzy" problem
Problem Definition
Problem - Broadest sense
sub-problem A
sub-problem B
sub-problem C
sub-problem D
etc.

You can get to Europe by sailboat, steamboat or plane, and you may soon be able to go by rocket. For some reason or other, you may decide to go by sailboat; but you do so with the realization that the other means of travel are also available to you. As opposed to "blind" acceptance, this represents deliberate _________ from among a variety of alternatives.

choice, selection, decision, etc.

And please recognize: to do nothing when something might be done, is also a decision!

Spend as much time as you still have available on this and the remaining pages.

List below a challenge you face or will be facing. State it as an idea-finding question. Then restate it several times, trying to get to the broadest possible interpretation.

CHALLENGE: In what ways might I ......

RESTATEMENT 1: In what ways might I ......

RESTATEMENT 2:

RESTATEMENT 3:

etc.

3

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Write below your best definition from the previous page. Then list a variety of means of helping to meet the challenge.

CHALLENGE ____

MEANS (ideas):

While you may have created worthwhile ideas on the previous page, it is possible that most of your alternatives or ideas are still fairly obvious, or "old-hat." Most likely you listed obvious alternatives, or well-known alternatives that were not necessarily obvious to you in relation to the particular challenge. Most suggestions we make are based upon what we already know or feel comfortable with. Sometimes we are able to expand "our world" -- and to feel comfortable with ideas which we discover as we glimpse the worlds of other people. Occasionally, we feel really rewarded and refreshed when we combine the strange ideas of others with the strange ideas of ours and come up with amazing and useful means! In later sessions, we are going to see how we can stretch our imagination to produce many "original" ideas in addition to those we are accustomed to having. Continue now with the final pages.

Repeat the process you followed on pages 49 to 50 for another of your challenges. See if you can increase both the number of alternative definitions and the number of means. Set yourself a quota of at least two more restatements and at least four more means than you had for the previous challenge. Use this and the next page as indicated.

CHALLENGE: (State here.)

RESTATEMENT 1:

RESTATEMENT 2:

RESTATEMENT 3:

RESTATEMENT 4:

RESTATEMENT 5:

etc.

rite below your best definition from the previous page. Then list a variety of eans to help you meet the challenge.

ALLENGE ____

ANS (ideas):

QUESTIONNAIRE

What, if anything, did you like and/or find particularly helpful about this session?

What, if anything, did you dislike and/or find not helpful about this session?

Was your progress through the session encouraging to you?

Did anything discourage you as you proceeded through the session? If so, what?

Explain briefly what you gained from this session?

Do you have any suggestions for improving the session (to make it more interesting, more effective, etc.)? If so, please write these and any other comments on the reverse side.

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

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Session #3 -- The Creative Process and Incubation

e people study all their life, and at their death they have learned everything
pt to think."

Domergue

reation should sometimes be given to the mind, that it may be restored to you
etter condition for thinking."

Anonymous

____

OL _______________________________________

____

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essions we will practice many techniques and procedures for producing
tive plans of action regarding our challenges. These methods will in-
lem-restatement and many other ways to increase (1) our sensitivity and
(2) our ability to form new ideas, and (3) our ability to evaluate,
d present ideas. The purpose of all of these methods is to help us make
tive decisions and plans regarding our problems and challenges, by assur-
ves that we have explored all conceivable alternatives.

the course you will find the words "creative" or "creativity" used fre-
The present session will clarify the concept of "creativity," -- a term
s so many things to different people.

ion will also clarify the meaning of another key term, "incubation," that
rlie, in a less formal way, many of the creative processes you will follow.
t all stages of your creative process, incubation can prove as valuable
ctive as the more "deliberate" effort expended. Helpful thoughts about
or challenge can be captured whenever they occur, rather than only during
erate listing of ideas. These thoughts may then be studied in relation
already listed, the next time you are ready to work deliberately on the

Spend
thoug

WHAT

e few minutes thinking about the following question; record some of your ts below.

S CREATIVITY?

Eac

we

tiv

rson has his own definition of "creativity." Since it is important that
rstand one another, the next pages will present the definition of "crea-
' as intended in connection with this course.

"Creativity is the struggle for improvement -- the rearrangement of variables which the human can change in search for improvement."

W. W. Culp
College President

(4)

In this course we will consider creativity as the process of recombining known elements to produce more valuable (satisfying) ideas than previously existed in the mind of the ________________.

creator, individual, problem-solver, thinker, etc.

(5)

Our definition of creativity thus denotes the generation of ideas that are new and valuable to the producer, but not necessarily to ______________.

others, the world, everyone, etc.

xample of creativity at its simplest concerns a first grader who had not yet
ned to read or write except for a few numbers and letters. She found it dif-
lt to remember the days when certain events were to take place in school.
day she came home to her parents and exclaimed, "We're going to have a party
chool, and this time I won't forget the day -- I have written it down." Her
nts looked at her inquisitively, knowing that she couldn't write. When they
rly opened her note, they saw merely the figures "22." They looked curiously
he little girl and asked, "You mean the 22nd?" The little girl answered,
t does '22nd' mean? My note means the party's on Tuesday!" Thus, the little
combined known elements in a new way to produce a novel idea that was of
e to ______________.

, the girl herself, etc.

(7)

though her idea may not have been new to someone else, the idea coincides

our definition of ______________________.

ity, creative behavior, etc.

The id

The cl

known

(8)

ea was new to the little girl, and it was useful in solving her problem.

ock-radio, with its more widespread value, is another example of ____________

elements or products in a new way.

ing, relating, arranging, using, changing, putting together, etc.

At a

illu

h higher level, Einstein's $E=MC^2$ (theory of relativity) is still another
tion of ________________ known elements in new and effective ways.

combining, arranging, relating, associating, using, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(10)

In Einstein's case, his creativity was new and valuable to society as well as to the ________________ himself.

individual, originator, producer, etc.

(11)

Perhaps it would be useful to make a brief analogy here between how our minds create new ____________________ and how the familiar kaleidoscope generates its patterns.

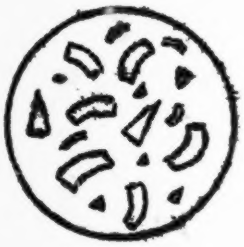
ideas, thoughts, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(12)

en you take apart the kaleidoscope and examine its contents, you find many

_______________ as shown in the illustration below.



lements, pieces, particles, fragments, etc.

(13)

larly, we might say that many "bits" or "pieces" are stored in the ___________;

or pieces of experience or sensory input.

ain, head, etc.

The

as

(14)

kaleidoscope's mirrors group its bits and pieces into a variety of ____________

he drum is revolved.

rns, pictures, shapes, etc.

The

into

(15)

idual's imagination groups its "bits and pieces" of ________________

ess combinations which we call ideas.

information, knowledge, thought, experience, etc.

(16)

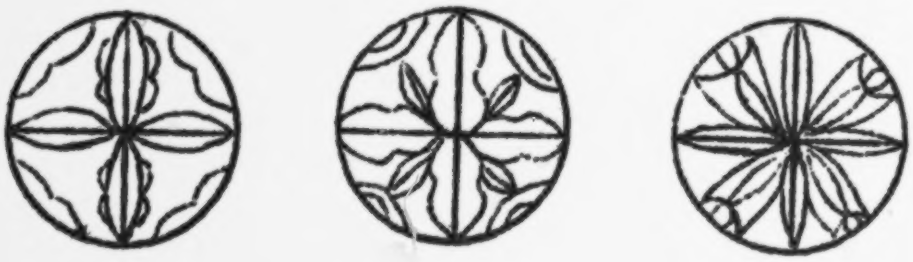
As long as you hold the kaleidoscope still, you see only one pattern or configuration, depending upon the way the elements ________________ themselves.

arrange, group, combine, assemble, place, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(17)

But as you turn the drum of the kaleidoscope, you find that many new patterns or configurations are generated out of the rearrangement of the ________________ contained in the drum (as shown below).



ieces, elements, fragments, particles, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(18)

These elements recombine to form many, many patterns, the number of these patterns being dependent upon the ______________ of elements that exist in the drum of the kaleidoscope.

, amount, variety, movement, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

☐

Tran

the

elem

ting this concept to your mental capacity, the more experience you have, e ideas your imagination can generate by ____________________ the known s in your mind in a new way.

ing, interrelating, rearranging, arranging, etc.

T

1

(20)

word experience is used here in its broadest sense, including all of the ng and learning that you have ________________ during your lifetime.

acc

d, gained, experienced, done, etc.

Howe

sati

the

as

(21)

, the generation of ideas by recombining our experiences is not enough to the main requirement for creativity. For creativity, as defined, implies eration of ideas which are not only new, but are ______________________

.

valuable, useful, etc.

(22)

Thus the two essential features of a creative idea, by our definition, are that it be: (1) ________________ and (2) ________________.

(1) new, novel, unique, etc.

(2) useful, valuable, worthwhile, etc.

(23)

Perhaps you have found new ideas occuring to you regarding the challenges on which you worked in earlier sessions. All of us find ideas welling up at unexpected times and places, even when we don't seem to be consciously thinking of the situation to which the ideas pertain. This part of the creative process is called "incubation," sometimes referred to as "sleeping on it." This is a spontaneous process of our minds.

We often find we derive ideas about a problem through this spontaneous process of our minds called ____________________.

incubation, "sleeping on it," etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(24)

We do not actually have to go to sleep to incubate. We may simply put the challenge out of our ________________ minds while doing something else.

conscious, cognizant, etc.

(25)

Then, from seemingly "out of nowhere," an ____________________ pops up when we least expect it.

swer, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

likely, however, the idea pops up not from "out of nowhere," but from a ce observation that spontaneously relates itself to the ________________ hich we had been incubating.

nge, problem, situation, etc.

"
a

u strike upon a thought that baffles you, break off from that entanglement
y another, so shall your wits be fresh to start again."

Aristophanes
Playwright

Here is an analogous illustration of how incubation seems to work. Look at an object anywhere in the room. Now shift your eyes to some other object several feet from the one on which you had fixed your attention. Note that while now focusing on the new object, you can still see the original object "in the corner of your eye." Problems may remain in our minds in a similar way -- even when we are ________________ about something else.

thinking, concentrating, etc.

(29)

We may suddenly observe and recognize some aspect of the new item or situation that is relevant to the ____________________ in the back of our minds.

allenge, problem, situation, thought, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(30)

wo seemingly different problems or situations may have "fringe areas" which are

ctually ____________________.

lated, similar, alike, correlated, etc.

(31)

Sometimes we feel that the new ________________ came "from out of nowhere."

a, thought, solution, etc.

er, it is well to note that ideas coming to us through the incubation pro-

involve not merely our present awareness or observation, but are a result

r prior _______________ regarding a challenge or problem.

king, concentration, experience, observations, knowledge, etc.

(33)

tion allows us to make connections between what we are aware of at the

and what we were aware of ______________________.

, formally, in the past, etc.

(34)

Therefore, the more observations and considerations which we "store up" about our challenges, the more opportunity we have to profit from the process of

________________.

4

incubation, "sleeping on it," etc.

(35)

Pasteur pointed out that inspiration (often the end product of incubation) is the impact of a newly observed fact upon a mind that has been ____________________ prepared by prior absorption of knowledge.

fully, well, previously, already, completely, partially, etc.

(36)

A mind rich with incubating observations and considerations might thus be a more fertile ground for creative ______________________.

ideas, thinking, inspiration, problem-solving, etc.

(37)

The incubation process will work for you 24 hours a day; but it requires food for ____________________.

thought, reflection, nourishment, etc.

(38)

We can supply this "food" by enriching our minds with all the observations we can make regarding our ____________________.

challenges, problems, environment, lives, etc.

(39)

Then, as we go about our everyday affairs, incubation may interrelate these observations and recombine them into ________________ ideas.

new, creative, useful, valuable, etc.

"It often happens that you have no success at all with a problem; you work very hard, yet without finding anything. But when you come back to the problem after a night's rest, or a few days' interruption, a bright idea appears and you solve the problem easily."

George Polya
Mathematician

(41)

It is important to be prepared to capture new ________________ that may thus pop into our heads at any time.

ideas, thoughts, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(42)

Otherwise, the ideas often ________________ just as quickly as they pop into our minds.

disappear, vanish, leave, fade, etc.

Because we tend to lose track of the many ideas we do have, it is helpful to jot down these ideas whenever they occur. That is why you have been provided at this session with an "idea notebook" to carry with you. Hopefully you will note therein many ideas about your challenging problems -- ideas that come to you by means of the process of ____________________.

incubation, "sleeping on it," etc.

(44)

Try to remember to carry your notebook with you constantly. Use it as an "idea-trap," in which you can capture your ____________________ in writing whenever they occur.

ideas, thoughts, etc.

"The thoughts that come often unsought, and as it were, drop into the mind, are commonly the most valuable of any we have, and therefore should be secured, because they seldom return again."

Locke
Philosopher

In this session, the concept of the creative process has been presented in terms of the rearranging of our experience to produce new and productive ways of meeting perplexities. This can occur both consciously (deliberately) and by means of incubation. Inherent in this process are experience ("knowledge"), imagination and evaluation.

In the next session you will be introduced to one of the most common ways in which our creative urge tends to be channeled: habit, i.e., responding automatically through past experience.

This booklet deals with "The Creative Process." Do you think the cover is rather dull?

What could we do to make the cover more appealing -- more indicative of the contents? Use this and the next pages (48 & 49) for your ideas, rough drawings, etc. Play freely with the ideas that come to your mind. Feel free to rearrange, add to, omit, replace, etc. Change the cover in any way you wish in order to suggest a revised cover that is more appropriate to the contents of this booklet.

Indicate with a star "★" the version that you like the best of all those that you jotted down. After the session, continue jotting ideas, sketches, etc. in your idea-notebook as they come to you during incubation.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(50)

Can you remember an occasion when you worked out a problem in your life by doing something creative about it?

If so, describe the problem and what you actually did to solve it.

(Use other side if you need more space.)

Take this sheet home with you. When you are relaxed and have the time, follow the six steps below in order to allow for more effective incubation.

1. Load your mind with a challenge you would like to meet -- a goal you would like to attain. List this challenge or goal on the first page of your idea-book. Examples: how to reduce by five pounds; how to get a term paper completed for a course; how to get to meet a certain person you would like to meet, etc. (Remember, the challenge or goal can be an opportunity as well as an obstacle!)

2. Spend some time listing relevant data regarding the challenge or goal you have listed. Record these facts in your idea-book. (If you have difficulty listing facts, it may be because they appear obvious to you. Try writing the facts as though you were explaining the situation in detail to someone else.)

3. On another page of your notebook, deliberately list all possible ideas that might help you meet the challenge.

4. Dismiss the challenge from your conscious mind. Then continually be on the alert for any new thoughts that may pop into your mind. Capture each of these ideas in your notebook.

5. Several times a day, review briefly the facts as well as the earlier ideas you have listed. This will help to keep your mind loaded with the "food for thought" for the incubation process.

6. Try this same procedure on other challenging problems that you face.

QUESTIONNAIRE

1. How was this session the most helpful?
2. Where was this session the least helpful?
3. Did the session appeal to you? Why or why not?
4. Suggest an idea or so, from your own reactions, which might add something to this session (make it more interesting or effective for you).

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #4 -- Habit and Creative Behavior

"Too many people live too much in the past. The past must be a springboard, not a sofa."

Harold Macmillan

"Age is only a point of view ... for if you think you know all about something, you are old."

Harry Myers

NAME ______________________________

SCHOOL ______________________________

DATE ______________________

---

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Did you make note of new ideas while incubating on the challenge of improving the cover of the previous booklet? If so, please insert (or copy below) these notations from your idea-notebook. If not, move on to the next page.

(2)

We often tend to act swiftly, guided only by our fixed beliefs and habits. Then we tend to justify our behavior and make ourselves believe that it was the ______________________ way to meet the challenge we faced.

only, best, correct, intelligent, right, etc.

(3)

In this way, our responses are dictated to us by our fixed beliefs and

______________________.

habits, conditioning, ideas, etc.

(4)

Habits are established by repeatedly applying ______________ experience.

old, previous, past, etc.

(5)

Of course, many of the everyday situations we face would cause us much trouble if we did not acquire habitual __________________ of meeting them.

ways, means, methods, etc.

(6)

On the other hand, we frequently let our habits, our established attitudes and experiences ____________________ us from handling new problems as effectively as we might.

hinder, block, prevent, keep, etc.

(7)

We limit our outlook to preconceived notions, habits, etc. We let the "habit" approach interfere with our natural urge to be ______________________.

creative, imaginative, independent, ourselves, etc.

As a brief experiment, clasp your hands in front of you.

Now observe whether your right or left thumb is on top. Then move on to the next page.

Experiments have shown that roughly half of the persons tested place their right thumbs on top, while the other half place their left thumbs on top.

(9)

Whichever way you did this, reclasp your fingers in the opposite manner so that the other thumb is on top. Indicate below how this feels.

Most people indicate that it is uncomfortable or unnatural to reclasp their hands in the way opposite to which they have been accustomed.

As another demonstration, fold your arms in front of you. Experiments show that about half the people fold one way, half the other way. Whichever way you did this, try the opposite way and indicate below whether or not it feels comfortable.

Most people find it difficult or uncomfortable to change their customary way of doing things. If you didn't find this so on either of the preceding examples, turn to page 37 and spend up to five minutes on the exercise shown there.

(11)

These illustrations tend to show how most of us are slaves of our ________________.

habits, conditioning, methods, etc.

(12)

Psychologists use the terms "functional fixedness," "rigidity," and "set" in describing the effect of habits which ____________________ creative thinking.

hinder, inhibit, prevent, block, limit, hamper, etc.

(13)

If we suffer from "functional fixedness," "rigidity," and "set," we tend to limit our thinking to __________________ means of meeting challenges.

old, habitual, routine, conventional, comfortable, familiar, uncreative, fewer, etc.

(14)

It must be emphasized, of course, that not all ________________ are harmful.

habits, routines, etc.

(15)

Without habit, we would be like the proverbial centipede who got terribly confused when asked to ________________ about which foot came first when he walked.

think, talk, etc.

(16)

And yet, life in a human society could be completely stunted and unrealized if curiosity never questioned ____________________.

habits, familiarity, routines, facts, etc.

(17)

Most habits, in themselves, are helpful; however, when we fail to question these habits, we ________________ our effectiveness in solving new problems.

hinder, reduce, lose, prevent, hamper, etc.

"After doing something the same way for two years, look it over carefully; after five years, look it over with suspicion; after ten years, throw it out and start over."

Alfred E. Perlman
Business Executive

(19)

When we want to be creative and think up new ideas, we must break away from the

_______________ ways of talking and looking at things.

old, usual, ordinary, conventional, habitual, etc.

In order to change our "automatic intake" of what goes on around us, we often purposely have to ________________ the comfortable "answers" that habits provide so swiftly.

reject, suspend, question, forego, change, etc.

Think of someone you care about. By what new ways might you let this person know that you are fond of him or her? (After you complete this page, you may take it with you if you like.)

List below, ways that are different from your habitual behavior.

(22)

Once we begin to recognize the effects of habit, we may deliberately use our imagination to generate ______________________ thoughts.

creative, new, different, original, dormant, etc.

As a result of stretching your imagination in the previous exercise, you may have listed some promising new ideas, as well as some that you once had in mind, but had ______________________ until now.

forgotten, overlooked, missed, discarded, rejected, disregarded, abandoned, etc.

5

(24)

Some of these previously-disregarded ____________________ may also prove to be valuable and satisfying.

ideas, thoughts, alternatives, etc.

You may find the following demonstration revealing, particularly if you feel you ran out of ideas as to how to show your fondness of the person you had in mind.

Indicate below whether you think you could recognize and name 20 varieties of birds:

Yes ____ No ____

If you are a birdwatcher, you undoubtedly answered "yes." You might well have said "yes" even if you are not a bird fancier. However, most people say "no," even though they probably know every one of the following 25 birds.

canary
parakeet
chicken
turkey
owl
pigeon
sparrow
robin
duck
pheasant
crow
eagle
goose
swan
parrot
peacock
ostrich
stork
hawk
seagull
dove
blue-bird
woodpecker
crane
falcon

(26)

That bird-test indicates that we probably know more about almost anything than we think we know. But our mental habits often make us say "no" to a question rather than to ____________________ to figure out the answer.

try, attempt, stop, start, etc.

(27)

Furthermore, we all have more creative ability than we realize. Our primary need is to ____________________ harder so as to make fuller use of our potential.

try, think, work, etc.

"The trouble with the average person is that he doesn't trust himself sufficiently to create and deliver ideas."

Norman Vincent Peale
Theologian

Now apply further effort to thinking up more ways of letting that person know you care about him or her. (After you complete this page, take it with you if you like.)

List below a variety of ideas that are different from those you habitually use or think of.

Select your best ideas from pages 21 and 29, and write below a brief plan of action for improving and using these ideas in demonstration of your affection for the person you have in mind. (Your ideas may be ready to put into effect "as is." In that case, you need only to select the one or ones you might like to use first, and possibly list steps you might take in preparing to apply the idea.)

(After you have finished this page, take it with you if you like!)

You have probably been able to devise an effective plan from the new ideas you had created, once you broke past your conventional or habitual ideas.

We will see in later sessions how increased observational ability can help us to break away from preconceived notions and to create valuable ideas in all types of problems.

The next session will give you the opportunity to test one method that has been proven by research and in practice to be an invaluable aid to idea-production, and to going "beyond the obvious."

Meanwhile, do something about the ideas and plans you developed today. Convert wishful thinking into willful doing. No idea is worth anything unless it is acted upon.

In the remaining time, apply the same effort to one or two of the challenges presented on the remaining pages. First try to word each one for idea-finding. (In what ways might I ...., etc.) Then spend as much time as possible listing alternatives. Don't give up too soon in the search. Force yourself to approach it in different ways, -- to go beyond the more obvious alternatives.

Be like the man whose neighbor kept him awake until two in the morning with loud music on his radio. He didn't fret and fume, or bang on the floor, or shout at his neighbor to stop. He phoned his neighbor at 5:00 a.m. and told him how much he had enjoyed the music.

SITUATION:

You are invited to dinner by a fellow student whom you have "dated" several times for daytime campus activities. You are very pleased about this. Upon arrival in the driveway of the home of the fellow student you become very uncomfortable and begin to "panic" as you realize that less than one week ago, these people had "slammed their door in your face" while you were canvassing the neighborhood for magazine subscriptions.

Statement of my challenge: What ways might I ......

Ideas (tentative leads to solution):

Circle the idea(s) you like best.
(Use back of page for additional ideas.)

SITUATION:

Each time you go out the door, your family asks you where you are going. It makes you feel about four years old.

Statement of my challenge: What ways might I ....

Ideas (tentative leads to solution):

Circle the idea(s) you like best.

(Use back of page for additional ideas.)

SITUATION:

You are taking a trip by bus which will last for three days. The bus is very crowded. You are seated with a person of the opposite sex, about 30 years your senior, who has the same destination. This person talks constantly to you and even pokes your arm if you start to doze. You have two more days of this.

Statement of my challenge: What ways might I ......

Ideas (tentative leads to solution):

Circle the idea(s) you like best.
(Use back of page for additional ideas.)

SITUATION:

Your family answers the phone and "interviews" all your friends who call you. This makes you feel uncomfortable, as if you are being overprotected.

Statement of my challenge: What ways might I ....

Ideas (tentative leads to solution):

Circle the idea(s) you like best.

(Use back of page for additional ideas.)

(36)

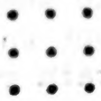
SITUATION: (Write your own here):

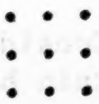
Statement of my challenge: What ways might I ......

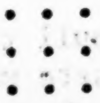
Ideas (tentative leads to solution):

Circle the idea(s) you like best.
(Use back of page for additional ideas.)

Without lifting your pencil from the paper, draw four (4) straight, connected lines which will go through all nine dots, but through each dot only once.







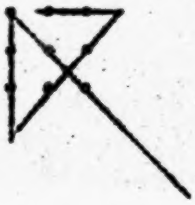
(Solution on reverse side under shaded area)

Our habitual way is to see the dots as outlining a "square." This makes it difficult to "break out" of this artificial boundary.

The following excerpts from Reader's Digest, "Hold That Habit," by Allen Smith are quite pertinent:

"This puts me in mind of a sketch on one of Fred Allen's radio shows. A man and wife live in a New York tenement; their bedroom window looks out on the Sixth Avenue El. It is their custom to retire at midnight. The last train rumbles and clatters by at one a.m., but the noise never disturbs them, never wakes them up. Then the El is discontinued. The first night when its trains are no longer running, the man and his wife go to sleep. Exactly at one o'clock, when nothing happens, the man leaps wildly awake and cries out, 'What was that?'"

"Never underestimate the strong pull that habit can exert. Consider John Barta, New York City truck driver. Barta was on his way to a certain business address and on arriving at the street observed that it was marked one-way against him. So he went along one more block, circled around and came in the street from the other end. Not until he was within a few yards of his destination did he realize that he was on foot."



"The world hates change, yet it is the only thing that has brought progress."

Charles F. Kettering
Inventor

QUESTIONNAIRE

1. What would you do to improve this session? What parts could be changed or left out?

2. Did anything discourage you as you proceeded through the session? If so, what?

3. What especially appealed to you or helped you?

R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #4 -- Habit and Creative Behavior

"Too many people live too much in the past. The past must be a springboard, not a sofa."

Harold Macmillan

"Age is only a point of view ... for if you think you know all about something, you are old."

Harry Myers

NAME ______________________________________

SCHOOL ____________________________________

DATE __________________________

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Session #5 -- Deferred Judgment

"The best way to have a good idea is to have lots of ideas."

Linus Pauling

"As is true of any other art, idea-production can be implemented by certain 'techniques' - especially by deferment of judgment during ideative effort."

Alex F. Osborn

NAME ______________________________

SCHOOL ______________________________

DATE ________________

---

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The following exercise will be used later to illustrate certain points to be made in this session.

Take five minutes to list ways you might improve a desk calendar:

(Use next page if you need more space)

(3)

Established habits often keep us confined to ______________________ ways of looking at things.

habitual, usual, conventional, old, traditional, common, etc.

(4)

For example, in working on the preceding challenge, you probably conceived some

__________________________ which you did not write down.

ideas, thoughts, etc.

(5)

As we grow up, and our minds become accustomed to conformity, we often find ourselves hesitant and timid about expressing ________________ that are unique, novel, or strange.

ideas, views, thoughts, etc.

(6)

You can probably remember one or more ideas that, for some reason, you did not

________________________ on your list.

write, put, include, mention, etc.

(7)

If you go back through your total chain of mental connections, you will almost certainly find that you thought up ideas that did not seem ____________________ enough to write down.

good, sensible, practical, important, etc.

(8)

Write below some of the reasons (other than "not enough time") why people might not list certain ideas that they think up. (It might be helpful to ask yourself why you didn't put down some of the particular ideas you thought of.) List your reasons below.

These are some of the common reasons that people mention:

I was afraid.

It sounded too silly.

It sounded too trivial.

It was an old idea.

It was too obvious.

It might not be acceptable.

It seemed impractical.

It sounded too personal.

It wasn't possible.

It was hard to express.

It was not in line with the rest.

It seemed insignificant.

It was too complicated.

It was too abstract.

It was odd.

(9)

Most of us are anxious about expressing our ideas. This often ________________ us from offering or even considering all of the ideas we think up.

prevents, stops, keeps, deters, blocks, inhibits, restrains, etc.

(10)

In order to generate plenty of ideas, we must help ourselves see beyond the

______________________ way of observing a situation.

usual, conventional, obvious, habitual, ordinary, old, etc.

(11)

In the past, you have undoubtedly found people inclined to reject some of your

__________________ ideas.

new, creative, unusual, imaginative, own, etc.

(12)

In this course, however, the opposite is the case; all of your ________________ ideas are wanted, as well as your habitual ones.

creative, new, unusual, strange, novel, original, etc.

(13)

Your strange or unusual ideas may ultimately lead you to new approaches that turn out to be ____________________ as well as unique.

useful, valuable, good, practical, promising, important, etc.

A group of supervisors were trying to think up ideas as to how to keep plant workers from wasting time reading the newspapers in which they were packing their company's products. The first idea that came to someone's mind was to use foreign-language newspapers as stuffing material. The next idea was to hire illiterate workers for these jobs. A third idea was to blindfold the workers. A fourth idea was to hire blind workers for the job. This last idea was considered quite workable and advantageous.

In the usual type of business conference, the "strange," "odd" and "silly" ideas described above would almost surely be discarded without giving them any

_______________________.

consideration, thought, further chance, etc.

But the mental associations that resulted from those supervisors "playing" with these strange ideas led to the creation of an idea that not only was novel, but turned out to be a ____________________ solution to the specific problem.

good, useful, practical, valuable, effective, new, workable, etc.

(16)

The company decided to explore the "blind workers" idea as a method of handling both the newspaper-reading challenge, and the challenge of finding ___________ for handicapped workers.

employment, work, jobs, etc.

(17)

The previous example points up the value of refraining from judging ideas too soon. When novel ideas are permitted to come forth, they can often be refined and developed into plans that are not only new, but are also ______________________ means of solving problems.

practical, valuable, workable, useful, acceptable, etc.

(18)

This is why the philosopher and educator, Alfred North Whitehead, observed that there is a certain amount of foolishness in any new idea when it is first produced. A valuable idea can often be developed and refined from the element of "foolishness" in the ________________ idea.

original, new, novel, unusual, different, unique, unorthodox, etc.

(19)

In other words, unconventional ideas -- even though they at first might seem actually silly -- can sometimes be developed and refined into new and ______________________ means of creatively solving a challenging problem.

valuable, better, useful, workable, acceptable, effective, sensible, etc.

(20)

Although all of us continually exercise our judgment, we are less prone to ____________________ our imagination deliberately.

exercise, use, etc.

(21)

When we are thinking up ideas, imagination and judgment tend to clash if we use

____________________ at the same time.

both, them, etc.

(22)

Imagination and judgment are to the thinker what a hammer and saw are to the carpenter. They are two kinds of ______________, each to be used in its own particular way.

tools, equipment, instruments, etc.

(23)

At times we encourage our judgment rather than our ______________________________.

imagination, imaginative mind, etc.

(24)

However, in the early stages of generating new ideas, we need to give imagination priority over ________________________.

judgment, judicial processes, etc.

(25)

If you will delay judgment while thinking up ideas, your imagination can supply inventive materials galore to be sorted later by your ______________________.

6

judgment, judicial mind, evaluation, etc.

(26)

This temporary ____________________ of evaluation is called the principle of deferred judgment.

delaying, withholding, putting off, lack, de-emphasis, etc.

(27)

Deferring judgment is important to the development of a sufficient quantity of viewpoints from which we can ultimately choose the alternatives with the most

__________________________.

quality, value, usefulness, promise, etc.

"In the case of a creative mind, it seems to me, the intellect has withdrawn its watchers from the gates, and the ideas rush in pell-mell and only then does it review and inspect the multitudes."

Frederick Schiller
Poet

(29)

It is worth noting that even though it is difficult to refrain from an immediate reaction to a new idea, we can nevertheless defer ______________________.

judgment, evaluation, appraisal, etc.

(30)

In other words, it is difficult not to form some kind of reaction to any new idea as it enters your mind. This reaction may be positive or ____________.

negative, unfavorable, etc.

(31)

However, such a momentary reaction need not ________________ you from temporarily listing any idea.

stop, prevent, keep, deter, restrict, etc.

(32)

Thus, although you may react to a new idea, you need not make any ultimate

____________________ during the idea-finding stage.

judgment, decision, evaluation, conclusion, etc.

(33)

Instead of judging each idea as you think it up, you can keep moving ahead and generating more and more new ________________ while you are deferring judgment.

ideas, thoughts, alternatives, etc.

You might even jot down your momentary "reaction" as an additional idea. For example, if your unavoidable and immediate reaction to an idea is "too costly," you might well jot down, "consider ________________" as your next idea.

cost, expense, etc.

(35)

Only after you feel you have used all the time available in generating new ideas are you ready to go back and ________________ your list of ideas.

judge, evaluate, consider, appraise, etc.

(36)

In this course, the process of separating the generation of ideas from the judgment of ideas is called the ______________ judgment principle.

deferred, deferment of, etc.

Let us try this principle of deferred judgment so that you may discover for yourself how it may help you to create more and newer ideas.

On the next pages, you will be asked to list all the ideas you can think of without judging them in any way. You will be concerned with quantity only. As you go along you may combine and modify any of the ideas which you have already listed, in order to produce additional ideas. You may come up with some very strange or humorous thoughts as well as conventional ones. Remember that quantity and freedom of expression, without evaluation, are called for. No one will judge your ideas. (You may tear out those pages and take them with you if you would prefer that no one see what you wrote.)

Turn now to page 38.

Take five minutes to list ways you might improve stairways: (Use deferred judgment)

(Use page 39 if you need more space.)

(40)

"When driving for ideas you can go further faster by keeping your foot off the brakes."

Alex F. Osborn
Author

Select one particular item of interest in the room you are in. Take five minutes to list as many ways as you can in which you might change that item to your own liking.

Item: ________________________________

Ways of changing this to suit my preference: (Use deferred judgment)

(Use page 42 if you need more space.)

Compare the number of ideas on the lists you just produced with the number of ideas on the list you produced at the beginning of the session. The items are different, of course, and it is possible that one was harder for you than the other. But, in scientific studies using equivalent-difficulty items, and where exactly-equivalent time limits are used for each task, most people produce substantially more ideas when they apply the principle of deferred judgment.

Most people find that their ideas are more interesting and potentially more valuable when they defer judgment, even though there may be much "chaff with the wheat."

Select the one exercise you liked better (page 38 or 41). Choose the best idea or combination of ideas in that selected exercise -- the one you would be most interested in putting to use. Write the idea(s) on the next page, and list steps you might take in developing and utilizing the selected idea(s).

IDEA(S):

WAYS TO IMPROVE, DEVELOP AND USE:

Perhaps you were able to come up with a valuable plan of action regarding a chosen idea. However, some people do not do so in these early exercises. But they do find that in many of the later opportunities, with the special techniques presented in subsequent sessions, they are able to develop useful plans for meeting specific challenges.

This session has demonstrated how deferred judgment allows our imagination free-play. In the next session we will look at specific techniques which enhance our production of ideas under this free-play.

Spend as much time as you still have available on this and the remaining pages.

Everyone has "pet peeves." For example, roommates who don't keep the room clean; fellows who call up the last minute for a date; girls who are never ready on time for a date; etc. Name one of your "pet peeves." Then list all the ideas you can dream up as to how you might reduce this irritation. Have fun listing all kinds of ideas -- zany as well as sane. Really defer judgment! Set yourself a quota. Are you willing to try for 20 ideas? Or more? State your quantity-quota here: ____ Now shoot for ideas to meet your quota. Remember, DEFER JUDGMENT!

STATE PET PEEVE:

IDEAS FOR REDUCING THE IRRITATION: (List these below, using deferred judgment.)

(Use the next two pages, as needed, for more ideas)

IDEAS: (Continued from previous page) (Use deferred judgment)

IDEAS: (Continued from previous page) (Use deferred judgment)

Choose from the previous pages the idea(s) that seem to be the most promising one(s). Write the idea(s) below. Then develop a brief plan of action for putting the ideas to use, and possibly for improving upon them.

IDEA(S):

PLAN FOR USING IDEA(S):

Indicate below or in your idea notebook, one goal you would like to attain within the next week. (For example: "Get an A on my composition or my quiz;" "save an extra $_____ out of my earnings or allowance," etc.) Then list a minimum of five ways to help yourself attain the goal. Apply everything you have learned in this course so far as you list ideas deliberately -- now and whenever else you have time. Also capture in your idea notebook, the thoughts that occur to you during incubation -- when you are not deliberately attempting to list ideas. You may also like to discuss your goal with others and add their ideas to your own.

QUESTIONNAIRE

1. What, if anything, did you like or find particularly helpful about this session?

2. What, if anything, did you dislike or find not helpful about this session?

3. Was your progress through the session encouraging to you?

4. Did anything discourage you as you proceeded through the session? If so, what?

5. Did you create any ideas that were especially pleasing or satisfying to you in any of the exercises?

6. Do you have any suggestions for improving the session (to make it more interesting, more effective, etc.)? If so, please write these and any other comments on the reverse side.

R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

ED015677

State University of New York at Buffalo

Session #6 -- Idea-Finding by Forced Relationships

"Everything is relevant; making things relevant is the creative process."

Wm. J. J. Gordon

"Lull'd in the countless chambers of the brain, our thoughts are link'd by many an endless chain."

Samuel Rogers

NAME ______________________________

SCHOOL ____________________________

DATE ________________

---

*This project is supported by the U. S. Office of Education (Grant No. 7-42-1630-213)

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(1)

We tend to associate or relate ideas or objects to each other in fixed patterns because of habit. Most of these __________________ of ideas were taught to us when we were young.

associations, relationships, etc.

(2)

We make these relationships unconsciously, by habit. These associations could therefore be called ____________________ relationships.

habit, habitual, automatic, fixed, unconscious, learned, etc.

(3)

Bread & butter, hand & glove, Mom & Dad, chair & table, ham & eggs, moon & June, are some examples of "habit" ______________________.

associations, relationships, responses, etc.

(4)

The way to step out of the "rut of habit" is to try to make different connections or associations between objects or ____________________.

ideas, thoughts, situations, people, etc.

(5)

These different associations could be called "forced" relationships between ideas which seem unrelated according to our old "habit" ______________________________.

relationships, associations, thinking, etc.

(6)

We use the word "forced" to remind us that we are purposely and deliberately combining or associating ______________________ in a non-habitual way.

ideas, objects, thoughts, etc.

(7)

We do this in order to arrive at new, yet useful ideas.

Deliberate or forced relationship must be "turned on," and the conventional or ________________________ associations suspended, or shelved temporarily.

habit, automatic, learned, etc.

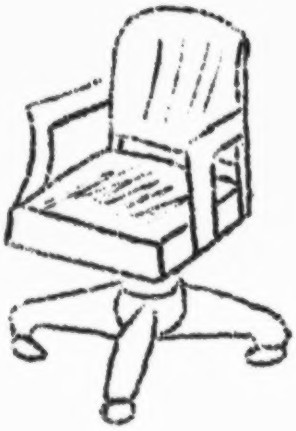
(8)

For example, if we asked you to relate a chair and a car, the obvious ______________ might be that both have seats.

relationship, association, connection, answer, etc.

If we examine the forced relationship further, however, we might observe that a car has wheels and ask, "Might a chair have wheels?"

This idea has been developed and is commonly seen in the form of desk chairs that have small __________________ on their legs, as in the sketch below.



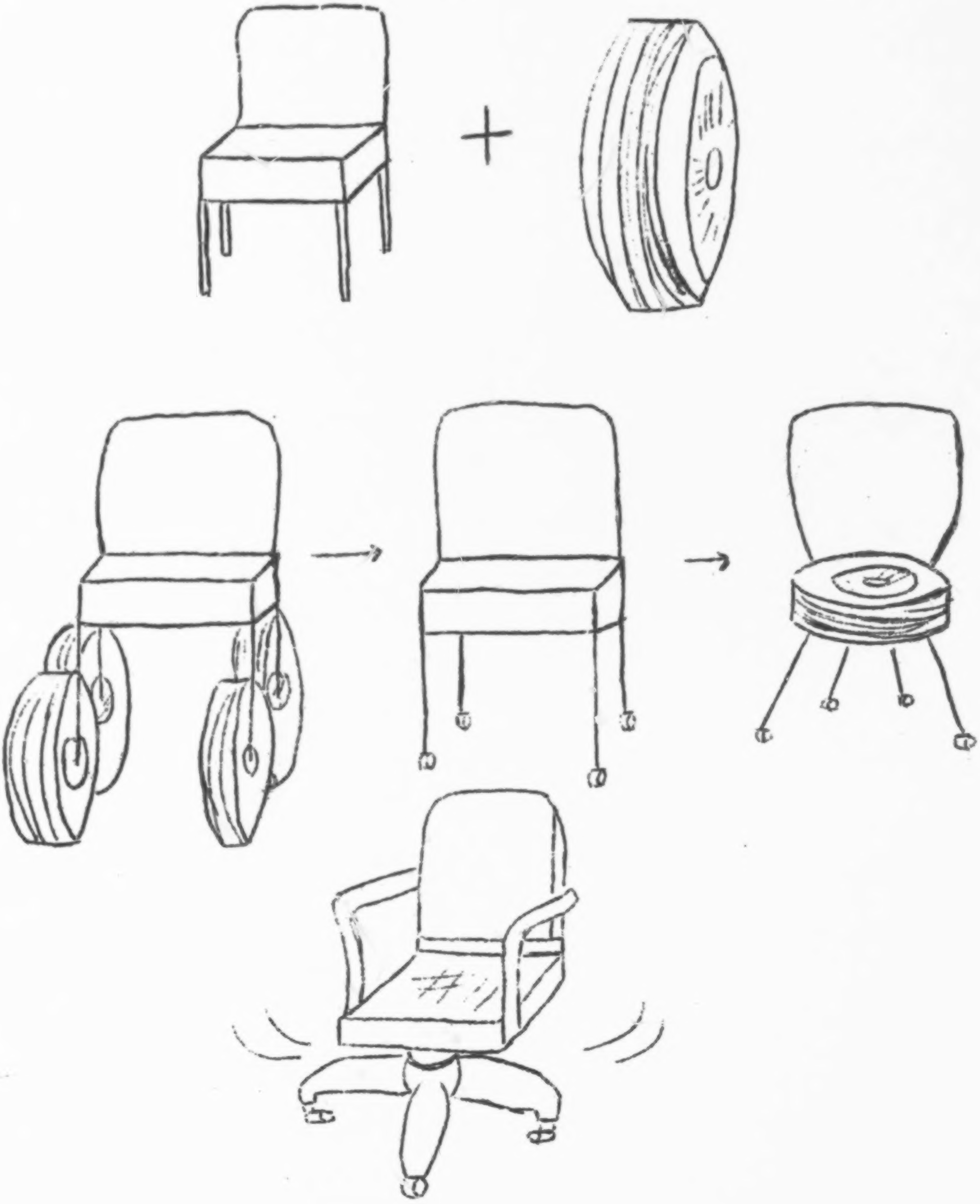
wheels, rollers, casters, etc.

(10)

Such a forced relationship might also have been responsible for the idea of the swivel chair, which utilizes the principle of a wheel in a _______________ way.

different, new, novel, etc.

The following sketches suggest how the swivel chair might have evolved from the forced relationship of "chair" and "wheel."



(12)

Obviously the final idea or product did not result from one simple step of

______________ car wheels to chairs.

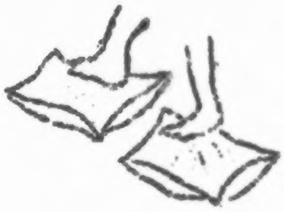
adding, relating, associating, attaching, etc.

(13)

The development of the swivel chair probably resulted from many channels of connection -- channels that were opened up after the initial forced ______________ was made between items of different types.

relationship, association, connection, etc.

In generating ideas for improving a shoe, you might observe a pillow, and force a relationship between it and a shoe. In considering the functions of a shoe and a pillow, you might say, "We walk on shoes to cushion the feet against the impact of floors or pavement. Might we walk on pillows?" What captions might a shoe manufacturer give to the following sketch advertising his shoes?



"like walking on air"

"soft as a pillow"

"the comfort of walking on feathers"

"like walking on a cloud"

etc.

(15)

Let's consider two other objects. List below, ways in which a tire and a doughnut are different.

color

taste

use

composition

size

texture

etc.

(16)

How might you improve a tire by changing its composition, texture, etc., to be more like that of a doughnut? List a few ideas below. (Defer judgment!)

Rough up surface of tire for better traction.

Make it of solid foam-rubber instead of air-filled.

etc.

(17)

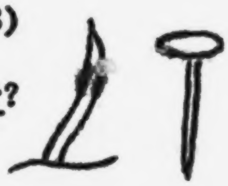
Many ideas may come from forcing ____________________ between a given object and something found in nature.

relationships, associations, etc.

1

(18)

For example, how are a carpenter's nail and a blade of grass similar?



Both long and narrow.

Both pointed.

Similar in size.

etc.

One might also observe that the grass is light and flat and ask, "How could nails be improved or serve new purposes if they were lighter or flat? Suggest a few ways. (Defer judgment)

Aluminum nails: less shipping cost, less rust, easier to carry in large quantities.

Flat nails could be sharpened to be used as scalpals.

etc.

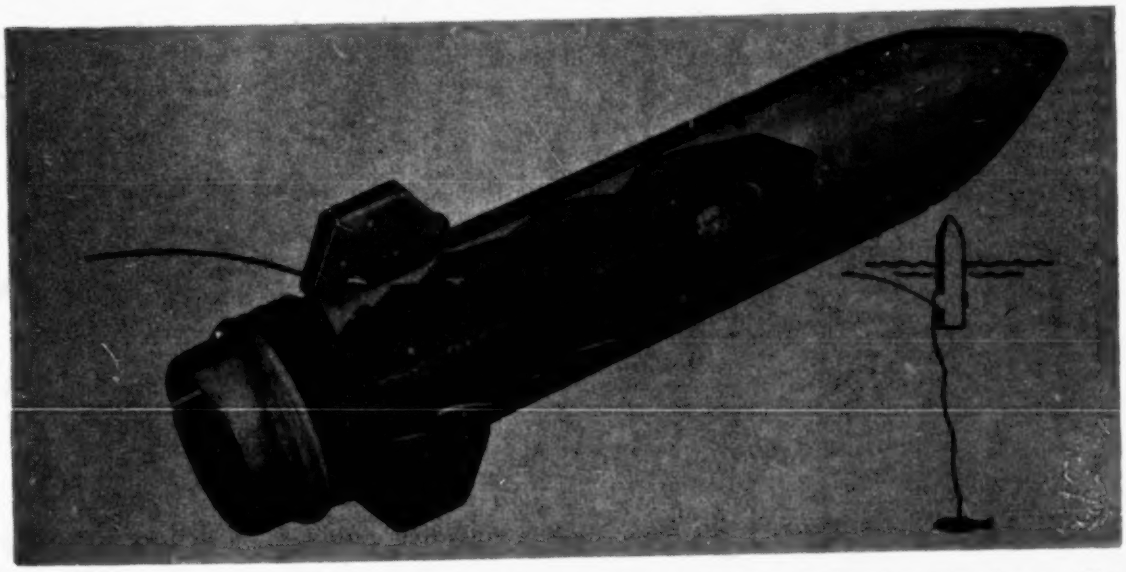
What similarities exist between a Dachshund dog and a modern car?

long, low, streamlined, etc.

This is the way one car manufacturer sees the relationship.

New wide stance in Ford cars
means greater stability, better handling

Suppose you were asked by a fishing enthusiast to suggest improvements for bait-casting equipment. It might seem rather ridiculous to ____________________ a relationship between a fish lure and a rocket; but read the explanation below.



MINNIE ROCKET. Bait fishermen who use the Minnie Rocket claim they get longer and more accurate casts. This plastic rocket holds your line, hook, favorite bait and sinker. When the rocket lands on water, the bait is released to a preset depth and the rocket becomes a float.

force, make, etc.

"We tend to forget that words are, themselves, ideas. They might be called ideas in a state of suspended animation."

James Webb Young

John W. Haefele, in his book, Creativity and Innovation, emphasizes ways of "playing" with noun and verb combinations to think up useful new products. These are techniques of forced ______________________.

relationship, association, etc.

Consider the nouns paper and soap. Papery soap suggests soap flakes. Soapy paper might suggest the new paper towels that are impregnated with ____________ for the traveler.

soap, cleanser, etc.

Using nouns as verbs, we might ponder further about paper that "soaps." What uses could you find for such paper in addition to the travel aid?

tough paper impregnated with soap or cleanser, usable for washing surfaces, dishes, etc.

"shampoo" impregnated papers for washing hair.

etc.

The attached "paper that soaps" is a new product-idea of Proctor & Gamble.

(25)

Now try the other sequence: List an idea that is suggested by soap that "papers." (If you cannot think of one in a reasonable amount of time, read those on the back of the page, and then try to add one more of your own.)

Soap-bar wrapper that is itself made of soap or of soap-impregnated paper.

Use soap to make a bathroom window translucent (so often used on Halloween!).

Labels and price stickers made of soap for easy removal from jars, glassware, etc.

etc.

(26)

Many new ideas may be suggested to you by forcing ________________ between seemingly unrelated objects or situations.

relationships, associations, etc.

(27)

Your clothing, for example, may seem totally unrelated to a challenge at hand. However, through certain random observations you may make, you may be able to ________________________ a relationship between the clothing and the challenge.

force, make, etc.

(28)

For example, suppose you were trying to think of ways to improve an automobile. A glance at the heels of your shoes might suddenly suggest a rubber dashboard, similar to the modern dashboard that is ______________________ for safety.

padded, cushioned, designed, used, provided, etc.

"A genius is someone who puts known facts together in an unusual way."

Anonymous

(30)

A tree outside your window, a bug crawling upon the windowsill, or a bird singing outdoors may appear to be unrelated to your challenge; but a forced relationship with such objects might trigger a ______________________ idea.

new, novel, valuable, etc.

(31)

It is advantageous to be constantly looking, feeling and listening -- using all of our senses -- when ____________________ for ideas.

searching, looking, etc.

(32)

By exposing ourselves deliberately to all that our senses can perceive, we may facilitate a forced relationship. It may even help us to think of a new relationship if we close our eyes and attempt to draw in thoughts and ideas through some of our other ___________________.

senses, methods of observation, ways of perceiving, etc.

Try putting this technique into practice. List below a few objects or situations in your everyday life which you would like to improve.

Choose one of the items listed on the previous page. Write it below, as indicat then list several observations you can make about it:

Item: ______________________________

Observations (Tell what you know about it; describe it.):

(35)

Now, by looking about, touching, listening, smelling, tasting, etc., you will observe elements in your immediate environment (indoors and outdoors) which do not immediately appear to be ________________________ to the item you want to improve.

Relate what you observe in your total surroundings to the object or situation you have chosen to improve. List below ideas for its change or improvement that migh thus be suggested. For example, you might be attempting to improve your desk. Looking out the window, you observe a tree and relate it to your desk. You imagi a small tree on your desk and arrive at the idea of adding a planter to the side of the desk. Or, you notice the cluster of twigs on a branch of the tree and relate this observation to your desk. You might then come up with the idea of a ne style ornamental pencil holder. *Defer judgment* as you attempt to create your own ideas regarding your chosen item by *forcing relationships* between it and your surroundings.

Select the idea that you consider most original from the previous page. Write it below. Then tell how you might use it to your advantage.

My original idea: ______________________________

How to use it:

(38)

A joke is told about the youngster who noticed his dad barbecuing a chicken on an outdoor grill. As Dad kept turning the spit handle around and around, the boy quipped, "Hey, Dad, the music's stopped and your monkey's on fire!" This youngster displayed real ability to associate seemingly ____________________ ideas.

irrelevant, unrelated, different, etc.

In this booklet you were looking for ideas through forced relationships.

After building up many ideas, there comes a time when we are ready to choose the one idea or combination of ideas which will best resolve our challenge for the moment. Later developments may call for further changes and further decisions, but we make a workable choice for now.

This evaluative aspect of creative problem-solving will be introduced in your next session.

"Invention is discernment, choice."

Poincaré
Mathematician

Spend as much time as you have available on the exercises on this and the next page.

Close your eyes and check two items at random from the following list. Associate the items with one another, and write an idea that is thus suggested for a new product, or an improvement for either of the original two items. Write your idea next to one of the items you are using in your forced relationship.

Do the same for a variety of pairs of items. If you feel especially creative, try relating three or four items simultaneously to produce a new idea! Defer judgment! Later go back and select the idea you like best, and tell how it might be used.

apple

suitcase

socks

bottle

window

wastebasket

comb

pocket

toothbrush

hook

chain

wheel

shoelace

book

ketchup

star

ashtray

tar

smoke

bed

Idea I like best: ____

How it might be used:

Try briefly to force new relationships with regard to other objects or situations you listed on page 33. Relate each object to random items in your environment. Strange but promising ideas may occur. List them below.

QUESTIONNAIRE

1. What, if anything, did you like or find particularly helpful about this session?

2. What, if anything, did you dislike or find not helpful about this session?

3. Was your progress through the session encouraging to you?

4. Did anything discourage you as you proceeded through the session? If so, what?

5. Did you create any ideas that were especially pleasing or satisfying to you in any of the exercises?

6. If I could change this session, I would

ED015677

R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #7 -- Evaluation

"No idea is so outlandish that it should not be considered with a searching but at the same time with a steady eye."

Winston Churchill

"He who has imagination without learning has wings and no feet."

Joseph Joubert

NAME ______________________________

SCHOOL ______________________________

DATE ________________

---

*This project is supported by the U.S. Office of Education (Grant No. 7-42-1630-213)

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(1)

Deliberate and imaginative manipulation of our observations about a problem, an object or a situation, helps us produce many ________________________.

(2)

In generating these ideas, adherence to the deferred-judgment principle helps us produce a greater variety, as well as a larger ______________________ of ideas.

number, amount, etc.

(3)

Some of these ideas may be quite conventional; others may be more novel. In any case, some ideas will be potentially of more __________________ than others.

value, use, worth, help, etc.

(4)

Because the possible number and variety of ideas is almost unlimited, we would never finish our list of ideas and create a plan of action, if we indefinitely adhered to the principle of ____________ ______________.

deferred judgment, delaying evaluation, etc.

(5)

Therefore, at a certain point, we must temporarily stop producing ideas and begin to evaluate them. To select the best of our ideas we must determine their potential ______________________________.

value, usefulness, worth, etc.

(6)

Evaluation is the process of determining how potentially valuable an idea could be in helping us to meet or solve a ____________________.

problem, challenge, etc.

(7)

In the evaluation process, we cannot afford to be haphazard but must judge systematically. Therefore, we need to establish criteria as means of judging our

____________________.

ideas, alternatives, etc.

(8)

Evaluative criteria are objective standards by which to ____________________ ideas.

judge, evaluate, appraise, etc.

(9)

We might say that criteria are yardsticks by which we can objectively ______ our ideas.

measure, judge, etc.

(10)

These criteria provide us with guides for mentally testing the worth of our

____________________ as leads to solutions.

ideas, alternatives, etc.

How do we evaluate an idea? List below some of the considerations you would apply in judging the value of an object or an idea.

cost

time required

usefulness

practicality

social acceptance

etc.

(12)

Sometimes it is difficult to determine exactly how to ________________ the worth of the ideas we have created.

evaluate, judge, measure, etc.

(13)

We all tend to judge spontaneously; we need to be able to evaluate situations and objects rapidly from our past ____________________.

experience, experiences, learning, etc.

(14)

For example, in choosing a piece of candy from a box of assorted chocolates, a young child, with his limited experience, might consider size as his only

________________________.

criterion (singular of criteria), basis of judgment, choice-factor, objective, guide, concern, etc.

(15)

On the other hand, in selecting a piece of candy from the same box, an adult would probably ask himself: "Which one will ____________________ the best?"

taste, I like, etc.

8

(16)

In choosing the candy, the child considered size alone, while the adult used taste as an alternative or additional ______________________.

criterion, yardstick, standard, measure, factor, etc.

(17)

If a man decides not to marry a girl because she is too young, he has established

____________________ as a criterion.

age, how old his mate should be, youthfulness, etc.

(18)

If he decides not to marry a girl because she is of a different faith, he has established ______________________ as a criterion.

religion, faith, etc.

(19)

Just as we have applied criteria in evaluating tangible objects and persons in the previous examples, we can apply criteria to evaluate our ______________ after we have created them.

ideas, alternatives, "intangibles," etc.

(20)

Suppose that in evaluating an idea, we consider, "How long will it take?" In this case our criterion is ____________________.

length of time, cost in time, etc.

(21)

If we are concerned with the amount of money an idea will involve, we are considering the effect on ________________ as a criterion.

cost, finances, monetary factors, etc.

A person may find that an idea seems good to him but has bad effects on others. Effects not only upon ourselves, but upon other members of our family, upon our friends, upon any other persons or groups involved, --- these are prime considerations as criteria for ____________________ the worth of new ideas we may want to use.

evaluating, judging, determining, etc.

(23)

In any situation, or in regard to any problem, we can set up many criteria to help judge the ____________________ of the ideas we have thought up.

value, usefulness, worth, etc.

(24)

The more criteria we use to guide our judgment, the better able we are to evaluate the worth of each of our ____________________________.

ideas, alternatives, suggestions, etc.

(25)

Suppose you are about to purchase a new car. List all the evaluative criteria you can think of for this purpose (such as cost, appeal to family, etc.).

Other criteria might include:

color, size, cost, power, mileage, style, trade-in-value, economy of operation, maintenance, performance, comfort and safety.

You may, of course, apply further criteria of your own, other than those included above.

Now let us apply the criteria-guidance procedure to evaluation of ideas, as we did to evaluation of the automobile on the previous page.

First, list below some ideas as to how you might find some extra time for your favorite hobby or recreation. What ways can you think of for doing this? (List these below.)

Now write down the criteria that might help you to judge the ideas you recorded on the previous page. List your criteria below (such as effect on health, costs involved, etc.).

Just as we defer judgment in order to generate more and better ideas, it is likewise helpful to defer judgment of the criteria themselves in order to think up more and better ______________________ by which we may judge the ideas.

criteria, yardsticks, etc.

(29)

The task of thinking up criteria for evaluating the ________________ of an idea is essentially a creative challenge.

value, validity, worth, usefulness, etc.

(30)

Creative evaluation goes beyond the commonplace and considers all conceivable criteria for ____________________ your ideas.

evaluating, judging, etc.

As a "warmup," try using deferred judgment in listing criteria for the evaluation of automobiles. Think up additional criteria beyond the commonplace. Don't be concerned about how insignificant or strange the criteria may seem or whether you listed them before. List here all that you can think of.

Here are some examples of additional criteria which you might think up as you strive to reach beyond the obvious:

speed, heater, pick-up, trunk size, two or four doors, type of carburetor, type of frame, type of wheels, type of upholstery (material stitched or glued, etc.), etc.

Again deferring your judgment, similarly think up additional criteria that might help you to evaluate your list of thoughts about finding some extra time for your favorite hobby or recreation. Try to think up a greater number of additional criteria than are contained in your original list on page 27.

(33)

By deferring judgment and listing many different criteria, we develop a better sensitivity to the possible effects of the ________________ we are evaluating with respect to a challenge or problem.

ideas, thoughts, etc.

(34)

If we consider all conceivable effects or repercussions of a new product or idea before we put it to use, we are less likely to find out later that there is something ____________________ with it.

wrong, the matter, etc.

Obviously you cannot go on forever in listing criteria, any more than in listing ideas. However, most people make the mistake of considering too ______________ rather than too many.

(15)

few, little, etc.

Obviously you cannot go on forever including criteria, any more
looks. However, most people make the mistake of considering too ______
rather than too many.

(36)

The development of sufficient criteria enhances one's sensitivity to new challenges or problems which might result from the implementation of a new __________________.

idea, thought, solution, etc.

(37)

Thus your evaluative criteria can help you to anticipate contingencies, consequences or effects that might result from your trying to put a new idea to

________________________.

use, work, etc.

Sufficient criteria can help you pre-judge whether an idea will work successfully in meeting or resolving the ______________________.

problem, challenge, etc.

Copy onto the chart below, three or four of the ideas you think are the most promising of those you listed on page 26. (Write them under "IDEAS.") Then copy from pages 27 and 32, the criteria which you feel are most pertinent. (List these in a vertical column under "CRITERIA.")

Use the following system to rate each idea in terms of each criterion. Use a 1, 2, 3 scale: 1 for poor, 2 for fair, and 3 for good. If a particular criterion does not pertain to a given idea, omit the rating in that space. By first rating all ideas in relationship to one criterion, and then in relationship to the second criterion, etc., you may help avoid the tendency to quickly rate an idea high on every criterion simply because its first rating or two are high. By rating all ideas against the first criterion, then against the second criterion, etc., we force ourselves to make comparisons between ideas, and this often results in more realistic ratings.

COMPLETE THE FOLLOWING CHART AS EXPLAINED ABOVE. Do your best; then study the sample response on the back of the page. If the sample chart gives you further understanding, go back then and work further on your own chart below.

IDEAS	CRITERIA						

Example of completed rating-chart:

	CRITERIA								
IDEAS	effect on family	effect on friends and others	effect on health	effect on my studies	effect on my extracurricular work & responsibilities	costs involved	likelihood of accomplishing it		
Get up earlier on weekends	3		3	3	3	3	2		
Study while eating breakfast	1		1	1	3	3	2		
Date girl interested in my hobby	3	2	3	2	2	3	2		
Give up part-time job	1	3	3	3	1	1	2		

"Doubt is uncomfortable but certainty is ridiculous."

Voltaire
Philosopher

After rating each idea against each criterion, you should be better able to select the most favorable ideas. These will probably be the ones with the most 3 or 2 ratings -- if your criteria are of relatively equal importance. (More about that in a later session.)

Write here the idea or combination of ideas you judge best among those evaluated on page 39.

List a few steps you might take in putting your idea (above) into practice, or ways you might improve the idea. (For example, regarding the first sample idea on the response to page 39, one might plan to "turn in" early, arrange to meet a friend at an early hour, etc.)

On the previous page, you made an attempt at implementation: i.e., putting an idea or ideas to use. This final step in creative problem-solving will be carried out in more detail in the next session.

If you have more time, devote it to this challenging problem:

On pages 25 and 31 you listed evaluative criteria to be considered if you were faced with the challenge of purchasing a new car. Now, let us use these same criteria in a different way.

Usually, we use evaluative criteria as a means of judging a given idea or ideas. On the other hand, it is possible that we might also find such yardsticks useful as a checklist to help us think up additional ideas.

For example, suppose you wanted to list ways of improving an automobile. What better stimuli could there be for improvement-ideas than the criteria you had already considered for the purchase of a car! For example, the "color" criterion might prompt the idea of multi-colored cars with wallpaper-type patterns; "comfort" might suggest steering wheels made of wood, so that they don't get hot in summer or cold in winter.

Using your criteria on pages 25 and 31 as stimulators, list (on page 43) your ideas for improving an automobile, using deferred judgment, of course. (You may tear out pages 25 and 31 for references in listing your ideas on page 43.)

(43)

IDEAS FOR IMPROVING AN AUTOMOBILE (Defer judgment!)

Select the idea you deem best for improving a car. Describe this idea the way you would state it as a suggestion to an automobile manufacturer. Try to anticipate and overcome objections he might have to using your suggestion. (Do this below.)

(45)

List criteria you might use in judging homes your family might be considering for purchase or rental.

List criteria for evaluating any major item you plan to be purchasing in the next year, or for evaluating any major idea you would like to put into effect in the next year.

QUESTIONNAIRE

1. What did you like most and/or find most helpful about this session?

2. What did you like least and/or find least helpful about this session?

3. Was your progress through this session encouraging to you?

4. Did anything discourage you as you proceeded through this session? If so, what?

5. Do you have any suggestions for improving the session (to make it more interesting, more effective, etc.)? If so, please write these and any other comments on the reverse side.

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #8 -- Preparing to Put Ideas to Use

"When I was a young man I observed that nine out of ten things I did were failures. I didn't want to be a failure, so I did ten times more work."

George Bernard Shaw

"Failure is the line of least persistence."

Alfred W. Brandt

NAME ______________________

SCHOOL ______________________

DATE ______________

---

*This project is supported by the U. S. Office of Education (Grant No. 7-42-1630-213)

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"Few ideas are in themselves practical. It is for the want of active imagination in their application rather than in their means of acquisition that they fail of success. The creative process does not end with an idea - it only starts with an idea."

John Arnold
Engineering Educator

(2)

Earlier sessions dealt with sensing and defining problems, generating ideas, and then evaluating the ideas by applying criteria. After having carefully selected the most promising of our ideas, we might be tempted to feel that we have reached the pinnacle of success -- that we have ________________________ our problem.

solved, resolved, answered, etc.

But life and its complex situations do not lend themselves to the "final" or "perfect" solution. Therefore, we have not completed the problem-solving process, because the carrying out or implementing of a solution-idea presents a new challenge: making our chosen idea ____________________________.

work, acceptable (or any statement indicating the necessity of getting the idea into effective use)

This new "implementation-challenge," therefore, presents a continuing exercise in creative problem-solving, just as in the case of our original ________________ for which we sought fresh ideas.

problem, challenge, etc.

(5)

Essentially, we can repeat the earlier steps in our process quite fruitfully. We are again at the "mess" stage, searching for challenges or problems that might arise in trying to ____________________ our chosen idea.

use, work with, implement, solve (in the sense of finding out how to make it workable), etc.

(6)

We nearly always find that before our solution-ideas can be utilized or implemented, they need to undergo some ____________________ in order to fit our needs precisely; i.e. in order to cope with challenges that might arise in applying the ideas.

change, alteration, modification, adaptation, tailoring, etc.

(7)

This process resembles that used by fashion designers. After a garment has progressed from drawing board and fabric to the model, and then to the purchaser, it must then be ______________________ to the customer's dimensions.

fitted, tailored, altered, etc.

(8)

Likewise, we tailor an idea carefully before applying it. This early "tailoring" of an idea may be rather easy and inexpensive; later action to rectify a defect in an idea, on the contrary, can be rather ____________________.

difficult, costly, expensive, complicated, time-taking, etc.

e are like parents to our creative ideas. A parent wants to help his young child e ready to "go it alone." He tries to prepare the child to "weather" the needs f the practical life. Implementation involves preparing our ideas for any demands hat may be made on them -- for any problems that might arise in their use.

n implementation-checklist may help us to see problems or "snags" in a solution-dea just as the sensitivity-checklist we used in an earlier session helped us to ee problems or challenges of life in general. We can then search for ideas under ach "implementation-problem" and can ultimately devise our plan of action based pon those "implementation-ideas" we judge to be the ______________________.

t, most valuable, most workable, most acceptable, etc.

see how this implementation-step works. Each of the next two cases describes lenge by stating some facts, the problem as defined, and a chosen idea to lemented. You may use one of the cases as the exercise for this session or y write one of your own if you prefer. In the latter case, the examples given sequent pages will serve as illustrations for you as you proceed. By all choose the situation that interests you the most for this practice exercise!

I. You are in college. You get an "A" on a term paper. One semester later, est friend has to do a paper for the same course. He wants your paper so hand it in as his own. He says, "After all, you got an 'A' on it, and I must get an 'A' in this course." You do not want to give him your paper. ink that he should write his own. But you don't want to risk his friend- He tells you he is coming over later in the day to pick up the paper.

some thought about the matter, you decide that your challenge is to discover o turn down your friend's request without harming your friendship. You think umber of ideas. After thoughtful evaluation, you decide that your most pro- means of meeting the challenge is to give him honest help in doing his own You want to be sure that you can successfully use the idea of "giving him help in doing his own paper."

II. (mentioned in an earlier session) A small church congregation of limited cial means faced the problem of repainting its historic old frame church in for its centennial celebration. To keep down costs, the men volunteered to painting during their spare time. Many weeks later, with the anniversary fast approaching, little or nothing had been done.

epair chairman decided to define his problem as "How to get the men started." ought of a number of ideas. His evaluation led him to the following idea that nted to carry out: to divide the surfaces to be painted into the same number ual parts as there were volunteers, and to paint each volunteer's name in large rs on one such section. He wanted to be sure this idea would be successful.

NOTE: If you prefer to describe an idea of your own that you would like to carry out with respect to a challenge facing you, use the next page to describe the situation. Then follow through the rest of the booklet, responding in terms of your own case.

ow the case on which you will be working:

Case I ("A" paper) _____

Case II (church) _____

Own case _____

o the next page if you are working on one of the given cases. If you pre-
e your own case, describe it below, including the important facts, the prob-
u define it, and an idea you want to put to use.

two problems or challenges that might arise if you tried to apply the

in the case you have selected.

We mi
check

These
chose
Write

Examp
is th
on ti

Examp
way a
equit

List

ver more "implementation-challenges" by use of the following brief

What?   Where?   When?   Why?   How?

s can help us anticipate problems, flaws, or "trouble spots" in our
If you were to try to use the idea, then what problems might arise?
ssible problems below, as you refer to the word-checklist above.

lation to "A" paper case: (a) How might I get him to see that this
pproach? (b) What might we do to enable him to complete the work

lation to church-painting case: (a) They might take it the wrong
me. How might I prevent this? (b) How can I divide the work
und vs. ladder work, windows, etc.)?

tional challenges here and on the back of the page.

Now, le
most in
you lis

Example
acters
Make a

Example
see it
to writ

List yo

"protective" thinking in relation to our solution-idea. Use the
problems you raised on the previous two pages as idea-spurrers, as
o "protect" your solution-idea, -- to insure its success.

ing "A" paper case: (a) Involve several friends with strong char-
versation with you and him regarding ethics of the situation; (b)
spend all day Saturday in the library together.

ing church-painting case: (a) Invite them to a party before they
are them for the shock; (b) Invite them, "first come, first served,"
r fellow's name in a marked-out square.

below and on the back of the page.

It may be
of your
complete
implement

e that you may see a change in emphasis and a need for redefinition
as you proceed. You may wish to change your chosen solution-idea
free to do so; this is one of the values of the re-processing and
ocedure.

Below are so
a few added
sume too qui
you defer ju
way of stren

An example w
idea of "giv
you have dec
or on the id
clarify the
regarding th
judgment as

ACCEPTANCE:

ANTICIPATIO

ASSISTANCE:

LOCATION:

TIMING:

PRECAUTION

mentation-stimulators." Under each "stimulator," try to list
regarding the putting to use of your chosen idea. Don't as-
the stimulator is not applicable to your particular idea. If
ou may discover a relationship and thus find another valuable
your implementation-plan.

ven under each stimulator. The example will pertain to the
honest help in doing his own paper" in the "A" paper case. If
ork on an idea of your own that you would like to implement,
e church repair-chairman, the example may still be helpful to
of the "stimulator." In addition, we have included examples
-painting case on the back of this page. Remember, defer
your own thoughts!

at ways might I gain acceptance? What advantages can I
for the idea and how might I dramatize these advantages?
mber that each of us observes through different eyes.
fore, avoid assuming that the other person will see your
as you do!) Example: Explain rules regarding cheating
ases where rules were carried out. List here one or two
ur thoughts regarding the particular idea you are working

ight I anticipate objections to my idea and thus be better
red to overcome them? Example: Suggest a specific time
I will help him. List here one or two of your thoughts
ding the particular idea you are working on:

at ways might other persons or groups be of help to me
plying my idea? Example: Get a mutual friend to join
my attempt to persuade him. List here one or two of
thoughts regarding the particular idea you are working

places or locations might be advantageous for putting my
into practice? Example: Take a walk with my friend
e presenting my case. List here one or two of your thoughts
rding the particular idea you are working on:

hat ways might I take advantage of special times, days,
s, etc. for implementing my idea? Example: First, con-
e him that we should have plenty of time for complete
ussion. List here one or two of your thoughts regarding
particular idea you are working on:

ways might I use to pre-test my chosen idea -- to safe-
rd or fortify it -- to insure its effectiveness? ("A stitch
time saves nine!") Example: Try my plan on someone else;
him what his reaction would be if he were the friend. List
e one or two of your thoughts regarding the particular idea
are working on:

Examples of id
church-paintin

ACCEPTANCE:

ANTICIPATION:

ASSISTANCE:

LOCATION:

TIMING:

PRECAUTIONS:

sted by each "implementation-stimulator," in regard to

or two of the volunteers to help you get the
the men to accept the idea without resentment.

prize for the first volunteer who completes
ting of his marked-off section.

dren to measure off the sections and to paint
ames.

minister to announce in church that the squares
marked-out after services, and to challenge the
get the job done that Sunday afternoon.

sections marked off Friday afternoon; challenge
to get them all painted before Sunday services.

"worst sport" of the group just before the plan
ied out. Let him in on your plan, and ask him
ou a favor by demonstrating to the other fellows
real sport is like.

Select from pages 14 and 16 your most promising ways of implementing your chosen idea. Based on these implementation-thoughts, outline below your plan of action for meeting the challenge.

PLAN OF ACTION (describe briefly here):

As a resumé of this implementation-step and as an illustration of its repetition of the entire creative problem-solving process, we present the following summary, using the church-painting challenge as our case. As you read the summary, mentally add other examples to the ones given. Or, if you used a different challenge, pause under each heading and mentally add examples that would be appropriate for the case you chose.

Solution-idea to be implemented: to divide the surfaces to be painted into the same number of equal parts as there were volunteers, and to paint each volunteer's name in large letters on one such surface.

Problems: how to prevent a "blow-up;" ways to get the squares painted; ways to make a joke of it, etc.

Ideas: let "ringleader" in on it; ask each one to write another's name; throw a party to break news to them, etc.

Criteria: cost, speed, attitudes, etc.

Solution-plan: who -- ask minister to get ringleader involved; ask wife to plan party, etc.
when -- at church on Sunday, etc.
etc.

A solution or a plan of action is like a landing on a stairway, -- a place to rest, -- to take stock of ourselves before starting out again; a place to "take a breath," -- to get a perspective of our position and our direction, to see where we are going and where we have come from in our thinking.

The following example is illustrative of how new challenges emerge from our present "solutions:" A team of electronics engineers had the problem of designing a camera for a special purpose. They created a camera that met the special needs very effectively. However, the camera was very costly and could not be used as generally as might be desired. Hence, the "emerging" challenge was to reduce the cost. By creatively approaching this challenge, they were able to reduce the cost drastically. This in turn created new challenges in selling the camera to broader markets. And so on. One "solution" becomes another ______________________.

llenge, problem, opportunity, etc.

e sensitive we are to all aspects of a situation, the more emerging chal-
we will recognize in all stages of the creative problem-solving process,
icularly the implementation stage. We might refer to this sensitivity as
of "constructive discontent." While it is often easy and comfortable to
sfied with a particular solution, we may be missing many new challenges
ortunities for creative thinking if we are too easily satisfied.

_w_ challenges or opportunities do you now see in the situation outlined on
, regarding the church repair chairman? Examples: How to have the best
r all those at the party; how to sell my wife on having the boys over; etc.

ther "emerging" challenges below:

al man reaches provides a new starting point, and the sum of all man's ust a beginning."

Lewis Mumford
Author

, to say 'impossible' always puts you on the losing side."

Wernher von Braun
Space Scientist

In
pr
ch
th
pr

Wh
wi
ar

If
ma

session we will emphasize fact-finding in the creative problem-solving
d will give you the opportunity to apply the entire process to meaningful
Meanwhile, spend as much time as you still have available on this and
ng pages. You may spend your time on the pages in whatever order you

on-idea in your personal life have you tried to apply or implement lately
h success? Write here the idea you would like to use but for some reason
e to carry out:

____

is, then what problems might arise? Defer judgment while listing as
ms as you see that might prevent you from using the idea.

Now,

each

ssible ways of implementing your idea, -- ways that are suggested by
you listed on the previous page. Defer judgment!

Develop
action
tion of

PLAN O

st implementation-thoughts from the previous page into a plan of l help insure your success in applying your idea or any new adapta- a that you now see.

(describe briefly here):

Look ove

implemen

pages.

Synecti

shadowy

to settl

effort.

study s

extende

lans on pages 17 and 24. See if you used in these plans some
leas that came from the later ones on your lists on the preceding
confirm the principle which William J. J. Gordon, author of
escribed as "foregoing the glittering immediate in favor of a
ibly somewhat richer future." In other words, it is best not
early idea but to strive for a better idea by means of extended
od ideas are often found among the later ones. One research
t 78% more good ideas were produced in the second half of an
than in the first half.

Only a very
on the earl
ideas to so
a line afte

opportunity has been available for incubation since you worked

f this booklet. Nevertheless, see if you can now add further

earlier pages (numbers 12, 13, 14, 16, 20, 22 and 23). Draw

rlier ideas to separate them from those you will now add.

There is seldo
by thinking up
10 or 11. The

IDEA: ________

WAYS TO IMPLEM

e way to meet a challenge. Demonstrate this to yourself
nt way of meeting one of the challenges described on pages
ys to implement the new idea you thought up.

fer judgment)

Now develop into a plan of action your best implementation-thoughts on the previous page.

PLAN OF ACTION (describe briefly here):

Some say that ideas are a dime a dozen. All agree that the idea put to use is all-important. Often the implementation of an idea requires more creative effort than thinking up the idea.

Select a specific idea from your plan of action on pages 17, 24 or 28. Write it below as indicated. Then add a few further thoughts as to how you might strengthen that specific idea.

SPECIFIC IDEA (from your plan):

WAYS TO IMPLEMENT this specific aspect of your plan:

Suppose you had the idea of using old phonograph records (discs) to make wall decorations. List ways you might implement this idea: (Defer judgment)

(Go back and circle the implementation-ideas you like best.)

QUESTIONNAIRE

What are your general reactions to this session?

What would you say, in your own words, was the main point (or points) you learned from this session?

Was your progress through the session encouraging to you?

Did anything discourage you as you proceeded through the session? If so, what?

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #9 -- Part A - Discovering Relevant Factors

is notoriously difficult to observe facts if we are looking only _at_ them and
for them, particularly if the facts present themselves as a complete surprise
if we are distracted at the time by emotion."

Hans Selye

v facts often trigger new ideas."

Alex F. Osborn

E ____

OOL ______________________________________

E ______________________

---

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(1)

em-solving, the fact-finding process calls for careful observation, with

es, in order to discover the relevant ____________________ that are in-

f

acts, considerations, data, ideas, conditions, challenges, etc.

These

feed

(2)

factors provide the raw material upon which our imagination can

ating new ______________________.

ideas,

, solutions, leads, etc.

The rele

rather t

tors must be a springboard from which our imagination can leap,

oor upon which our imagination can ____________________.

rest, sit,

remain, lie, stand, walk, fall, etc.

If we allow bi

will be ______

tort the relevant factors we discover, the resultant ideas

__________.

biased, distorted, misleading, invalid, poor, useless, etc.

The feeding of one's brain with biased factors may be like feeding a computer with incorrectly programmed sets of cards. In both cases the resultant answers would be ____________________.

ncorrect, wrong, biased, false, distorted, lacking, useless, etc.

(6)

tend to base the interpretation of our observations upon past ____________________ ence, experiences, knowledge, etc.

nding raw, unbiased factors is difficult because we so often color the

____________ to conform with our comfortable expectations.

acts, data, ideas, picture, experience, past, etc.

By w

insi

deac

the

pat

The

ustration, there is the story about the psychiatrist's patient who he was dead. The psychiatrist asked him if he would agree that 't bleed. The patient agreed. The psychiatrist thereupon pricked finger, drawing bright red blood. "Well I'll be darned," the aimed, "Dead men do bleed after all!"

__________________ a fact to justify his bias.

distort

ered, rationalized, changed, colored, fabricated, etc.

We must

ready to

that circumstances surrounding facts do change and we must be
e these _________________ when they occur.

changes, v

, modifications, changed circumstances, etc.

Just as a tai

a suit (even

seek ________

t always use the same measurements in the final fitting of
ame man) so, to insure fact-finding accuracy, we need to
_______ information.

additional, more, current, up-to-date, new, recent, correct, accurate, etc.

(11)

The more new facts we can feed to our imagination, the more likely we are to generate new ________________________.

ideas, alternatives, answers, thoughts, etc.

is is why questioning -- discovering relevant factors -- is so vital in generat-
g creative means of meeting a challenge. Realizing this, the mother of a Nobel-
ize scientist inquired of her son after school each day, "Did you ask any good
_____________________ today?"

tions, queries, etc.

(13)

raise good questions, however, we must be sure to seek the _______________.

an

planations, facts, truth, etc.

In

qu

th

ly approaching a problem, there will always be practical limits to our , since we are unlikely ever to acquire **all** the ____________________ be relevant.

facts,

tion, knowledge, answers, ideas, questions, etc.

But, w

possib

limits of time and circumstances, we try our best to discover all that may pertain to our ____________________.

challenge,

question, etc.

Like physici

way, within

vant ______

osing the illness of a patient, we must try, in an objective

s of time and practical considerations, to discover all rele-

__________.

factors, facts, information, answers, possibilities, symptoms, etc.

(17)

As to how much time we should spend on gathering relevant factors, this depends on questions such as: "How important is the ______________?" "How many people does it ________________?", etc.

hallenge, problem, question, situation, answer, factor, etc.

ffect, concern, involve, require, etc.

is worth noting that a challenge may often be met by "creative" discovery of evant factors. The creativity in this case consists of devising ideas for overing pertinent ______________________.

, factors, information, data, thoughts, relations, etc.

ch-scientist, Louis Walkup, emphasizes, "If it is legitimately a problem -- t just some known fact of nature that he is not acquainted with -- the reer will still be faced with it after this data-gathering process." On the hand, if the solution to a problem is merely a known fact with which we may familiar, then during the data-gathering process, the problem may sometimes _______________ itself.

ver, resolve, etc.

pr

e, as emphasized earlier, the process of discovering relevant ____________ facts,
uel for empowering our imagination.

, information, data, etc.

The que

questio

"What i

raise regarding a problem may be of different types. Some
nformation (facts) while other questions call for judgments.
one number?" is a question which asks for a ______________.

fact, bit
"Should I

mation, definite answer, (or in some cases, a quick decision: to him or not?!?"), etc.

Another fact- game?" Howev

(22)

uestion might be, "What is the cost of the tickets to the

ld we go?" calls for a judgment, rather than a ______________.

fact, bit of information, etc.

10

(23)

Fact-finding questions call for and lead to facts while decision-finding questions call for and lead to ____________________.

decisions, judgments, answers, solutions, etc.

(24)

On the other hand, some questions call for new ideas rather than either facts or

________________________.

decisions, judgments, etc.

For instance, "In what new ways might we use a brick?" This question calls for new ______________________.

ideas, alternatives, suggestions, thoughts; --- or, facts out of which to create ideas; judgments as to the relative appropriateness of our ideas; etc.

Sometimes the changing of just one word will convert the emphasis of a question from sheer fact-finding or decision-finding to an emphasis which can suggest more idea-finding as well. For instance, "How did he go?" seems to emphasize fact-finding, while "How might he go?" allows for ________-finding, as well as the possibility of additional fact-finding and ultimately decision-finding.

idea, alternative, etc.

"What ways have been used to get this done?" seems to emphasize fact-finding. To suggest further idea-finding, we might word it as, "In what new ways ___________ this be done?"

might, can, could, etc.

The verb itself often determines the nature of the question. "Should" often indicates a decision-finding question. "Is" and "does" often indicate a fact-finding question. The word "might," as we have used it, suggests an _______________-finding question.

idea, alternative, etc. . .

Different types of questions emphasize either facts or ideas or judgments, and time should be taken for each. Observe the attached rubber-band. Write one or two questions about it to illustrate each of the following types of questions.

Emphasis on fact-finding:

Emphasis on idea-finding:

Emphasis on decision-finding:

Emphasis on fact-finding:	Where is the raw material produced?
	What is the actual raw material?
	What is the cost per gross?
	etc.
Emphasis on idea-finding:	In what ways might I increase its resiliency?
	What kinds of toys might I make with it?
	How might I get a "better" price on large quantities?
	etc.
Emphasis on decision-finding:	Am I buying these at the best price?
	Would one of different dimensions suit my purposes better?
	Should I use string instead?
	etc.

(30)

Please move on to Part B of this session, in the separate booklet that was provided.

Part "B" not included.

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #9 -- Part A - Discovering Relevant Factors

"It is notoriously difficult to observe facts if we are looking only at them and not for them, particularly if the facts present themselves as a complete surprise and if we are distracted at the time by emotion."

Hans Selye

"New facts often trigger new ideas."

Alex F. Osborn

NAME ____

SCHOOL ____

DATE ____________________________

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In problem-solving, the fact-finding process calls for careful observation, with all senses, in order to discover the relevant facts that are involved. These relevant factors provide the raw material upon which our imagination can feed in generating new ideas. The relevant factors must be a springboard from which our imagination can leap, rather than a floor upon which our imagination can rest.

If we allow bias to distort the relevant factors we discover, the resultant ideas will be distorted. The feeding of one's brain with biased factors may be like feeding a computer with incorrectly programmed sets of cards. In both cases the resultant answers would be incorrect.

We tend to base the interpretation of our observations upon past experience. Hence, finding raw, unbiased factors is difficult because we so often color the ideas to conform with our comfortable expectations. By way of illustration, there is the story about the psychiatrist's patient who insisted that he was dead. The psychiatrist asked him if he would agree that dead men don't bleed. The patient agreed. The psychiatrist thereupon pricked the patient's finger, drawing bright red blood. "Well I'll be darned," the patient exclaimed, "Dead men do bleed after all!" The patient interpreted a fact to justify his bias.

We must remember that circumstances surrounding facts do change and we must be ready to recognize these changes when they occur. Just as the tailor cannot always use the same measurements in the final fitting of a suit (even for the same man) so, to insure fact-finding accuracy, we need to seek additional information. The more new facts we can feed to our imagination, the more likely we are to generate new ideas. This is why questioning -- discovering relevant factors -- is so vital in generating creative means of meeting a challenge. Realizing this, the mother of a Nobel-prize scientist inquired of her son after school each day, "Did you ask any good questions today?"

When we raise good questions, however, we must be sure to seek the answers. In creatively approaching a problem, there will always be practical limits to our questioning, since we are unlikely ever to acquire all the facts that might be relevant. But, within the limits of time and circumstances, we try our best to discover all possible facts that may pertain to our problem. Like physicians diagnosing the illness of a patient, we must try, in an objective way, within the limits of time and practical considerations, to discover all relevant factors. As to how much time we should spend on gathering relevant factors, this depends on questions such as: "How important is the problem?" "How many people does it affect?", etc.

It is worth noting that a challenge may often be met by "creative" discovery of relevant factors. The creativity in this case consists of devising ideas for uncovering pertinent data.

Research scientist, Lewis Walkup, emphasizes, "If it is legitimately a problem -- and not just some known fact of nature that he is not acquainted with -- the researcher will still be faced with it after this data-gathering process." On the other hand, if the solution to a problem is merely a known fact with which we may not be familiar, then during the data-gathering process, the problem may sometimes solve itself. In any case, as emphasized earlier, the process of discovering relevant facts provides fuel for empowering our imagination.

The questions we raise regarding a problem may be of different types. Some questions seek information (facts) while other questions call for judgments. "What is your phone number?" is a question which asks for a fact (or in some cases a quick decision: "Should I give it to him or not?!?"). Another fact-finding question might be, "What is the cost of the tickets to the game?" However, "Should we go?" calls for a judgment, rather than a fact.

Fact-finding questions call for and lead to facts while decision-finding questions call for and lead to judgments. On the other hand, some questions call for new ideas rather than either facts or judgments. For instance, "In what new ways might we use a brick?" This question calls for new ideas (or facts out of which to create ideas; or judgment as to the relative appropriateness of the ideas).

Sometimes the changing of just one word will convert the emphasis of a question from sheer fact-finding or decision-finding to an emphasis which can suggest more idea-finding as well. For instance, "How did he go?" seems to emphasize a fact-finding, while "How might he go?" allows for idea-finding, as well as the possibility of additional fact-finding and ultimately decision-finding. "What ways have been used to get this done?" is a fact-finding question, while an idea-finding question would be "In what new ways might this be done?"

The verb itself often determines the nature of the question. "Should" often indicates a decision-finding question. "Is" and "does" often indicate a fact-finding question. The word "might", as we have used it, suggests an idea-finding question.

Different types of questions emphasize either facts or ideas or judgments, and time should be taken for each. Observe the attached rubber-band. Write one or two questions about it to illustrate each of the following types of questions.

Emphasis on fact-finding: ______________________________

____

Emphasis on idea-finding: ______________________________

____

Emphasis on decision-finding: __________________________

____

Here are some typical questions:

Fact-finding:	Where is the raw material produced? What is the actual raw material? What is the cost per gross? etc.
Idea-finding:	In what ways might I increase its resiliency? What kinds of toys might I make with it? How might I get a "better" price on large quantities? etc.
Decision-finding:	Am I buying these at the best price? Would one of different dimensions suit my purposes better? Should I use string instead? etc.

Please move on to Part B of this session, in the separate booklet that was provided.

Part "B" not included.

R

ED015677

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #10 -- Observation and Perception

"Observation, not old age, brings wisdom."

Publilius Syrus

"Nothing has such power to broaden the mind as the ability to investigate systematically and truly all that comes under thy observation in life."

Marcus Aurelius

NAME ______________________________

SCHOOL ______________________________

DATE ____________________

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This and the next several sessions will try to help you see how your decision-making is affected by your observations and ways of talking about objects and situations. After practice in observational skills, you will study how to "manipulate" your observations deliberately to create many new ideas, some of which are likely to be both unique and valuable as improvements for various objects and situations.

(2)

Paths toward meeting a challenge are sometimes difficult to discern because our minds tend to stay on fixed tracks, and to ignore ____________________ means of approaching problems.

creative, imaginative, new, alternate, different, other, etc.

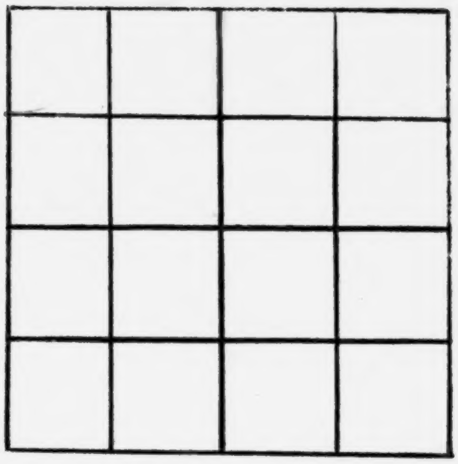
(3)

In looking for alternate means, we must observe thoroughly. Examining objects closely is one way of ________________ thoroughly.

observing, studying, exploring, etc.

For example, how many squares do you see in this illustration?

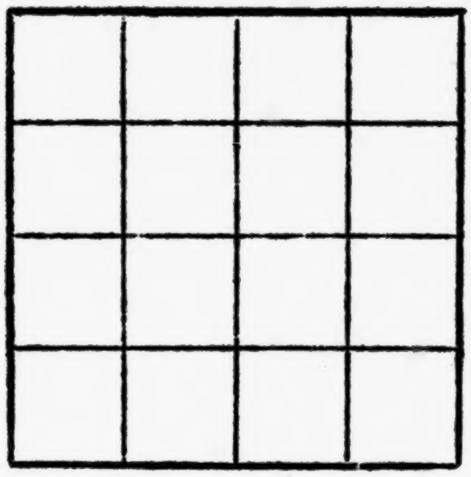
Answer: ______________



Most people multiply four times four and arrive at sixteen as their answer. You may have perceived other and better answers.

(5)

Whatever your answer, let us analyze the illustration and see exactly which squares you observed. First, we note the large total square (in dark lines) produced by the group of ________________________ squares.

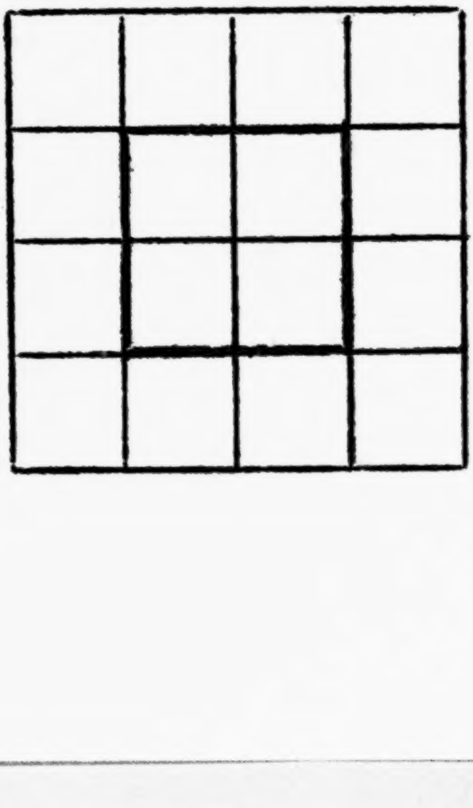


smaller, sixteen, component, lighter, etc.

(6)

Observing the dark lines in the illustration below gives you still another square.

But you can still outline ______________________ more.

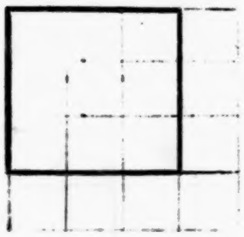


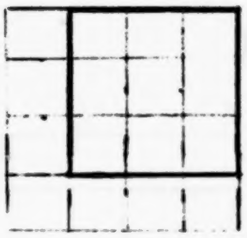
many, at least 12, etc.

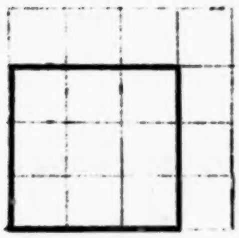
(7)

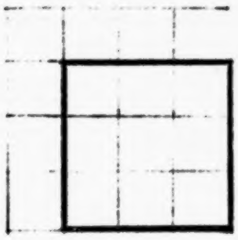
The dark lines in the illustration below help you to observe four additional squares. How many more squares can you still add to the 22 already outlined?

Answer: ________________

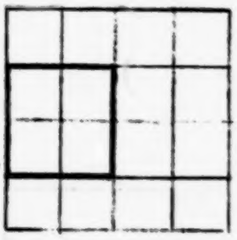


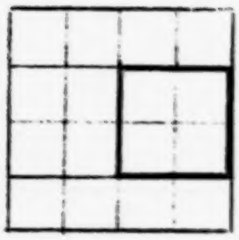


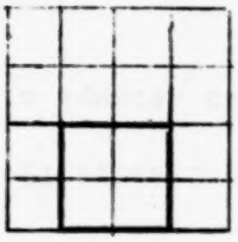


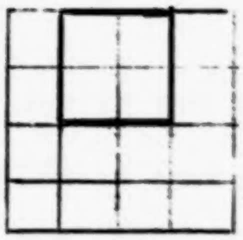


At least eight more. Here are four of them.

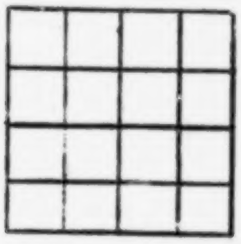


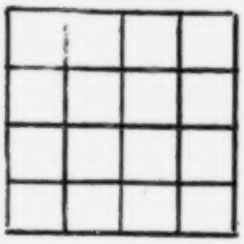


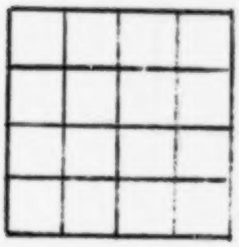


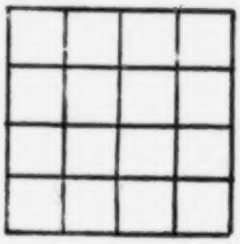


Now try to outline four more squares on the illustration below, and thus increase the total to 30.

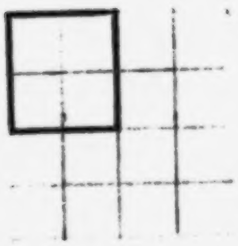


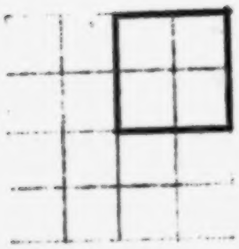


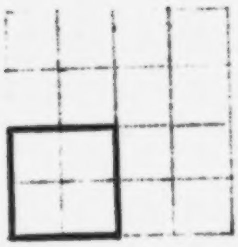


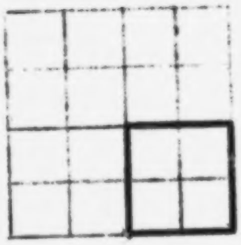


Here they are:

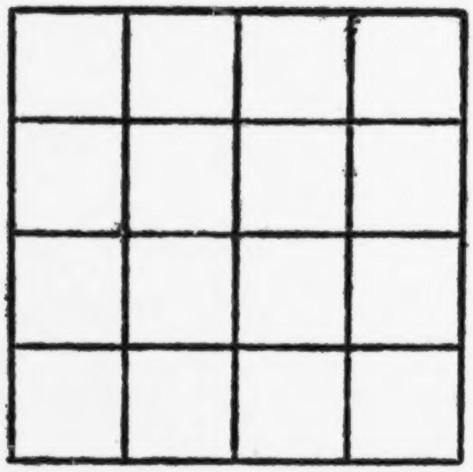








"Infinity" might be an answer to how many squares or cubes are perceivable. Try to visualize how this is possible.



You might imagine the drawing to represent one side of a huge pile of glass blocks, infinitely deep, that you are facing.

(10)

Many factors influence your manner of observing an object or situation. Name a few below:

You may have listed a variety of factors. The following pages will deal with the particular factors of purpose, attitude and past experience.

(11)

Apart from our method, time and place of observing, one factor which influences our observation of an object or situation is the ________________________ for our observing the object or situation.

reason, purpose, motive, etc.

(12)

Another factor which influences our observation is our attitude or what we

_____________________ to observe.

want, expect, desire, wish, need, etc.

(13)

Past experience is another factor which affects our ____________________ of an object or situation.

observation, perception, way of seeing, etc.

So far we have listed the following factors which influence our observation of an object or situation: (1) our purpose, (2) our attitude, and (3) our past

________________________.

experience, knowledge, etc.

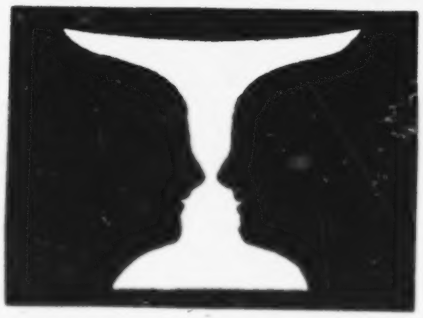
(15)

Although these three factors are not easily separated, they may inhibit or limit our view in different ways when we ____________________ an object or situation.

observe, look at, see, etc.

(16)

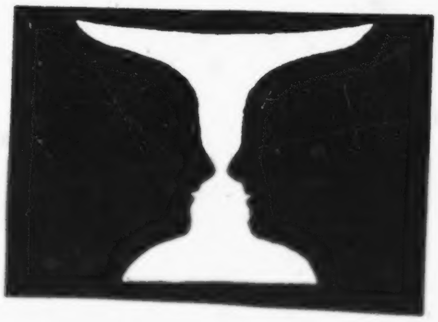
Let us examine how we observe. Look at the following illustration and write below what you see.



Most people see a silver bowl, a glass, a vase, etc. and/or two faces (silhouettes) looking at each other. Perhaps you see something else.

(17)

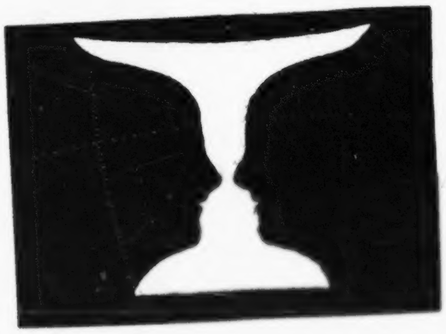
If you see a bowl or stemmed glass, you see a white object on a ____________________ background.



black, dark, contrasting, etc.

(18)

If you see two silhouettes, you see black objects on a ____________________ background.



white, light, contrasting, etc.

(19)

In both cases you add depth, which makes the picture refer easily to something you already ________________________.

know, understand, recognize, etc.

(20)

Two unrelated objects are thus perceivable in the __________________ illustration.

same, one, single, previous, etc.

"Perception is a prediction, not a truth."

Ross Mooney
Educator

(22)

It is your imagination that enables you to make two coherent interpretations from the one illustration (bowl or silhouette-faces). These interpretations are related to your past ________________.

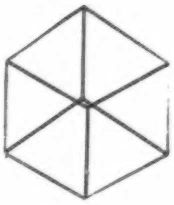
experience, knowledge, etc.

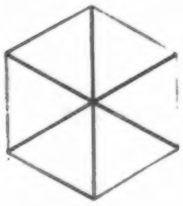
(23)

You can interpret visual experiences in different ways. While your eyes may see every line in any observation, your mind organizes what you ____________________ into a pattern meaningful to you.

see, observe, notice, etc.

Describe below, the following two illustrations.



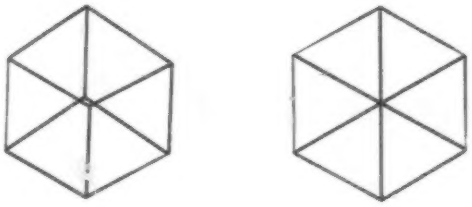


groups of lines
cubes
hexagons
three-dimensional figures
containers
diamonds
pyramids (from top view)
umbrellas (from top view)

Your responses probably include one or more of the above. Or you may have perceived different and less common forms such as pin-wheels, tops of tents, polygons, snowflakes, etc.

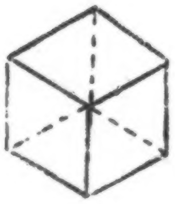
(25)

You probably perceive the figure on the left as a cube, and the one on the right as a mosaic or tile. The slight distortion in the symmetry of the figure on the left side adds a new perspective -- depth -- to the set of lines. With this clue provided, try to perceive the figure on the right as a cube.

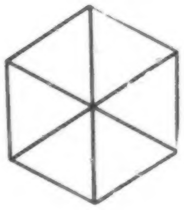


By imagining the figure in illustration (A) as a clear glass cube, you will have a further clue to seeing figure (B) as a cube.

(A)



(B)



(26)

To gain new perspectives about any objects or situations, it is necessary to be a keen ________________________.

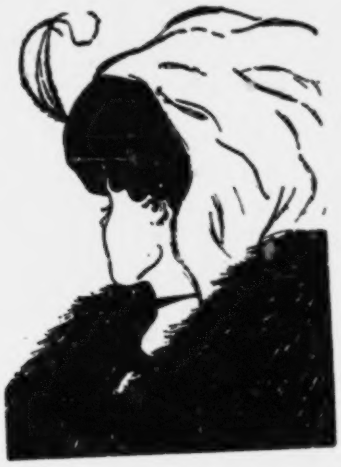
observer, viewer, etc.

"Sight is a faculty; seeing is an art."

George Perkins Marsh
Lawyer

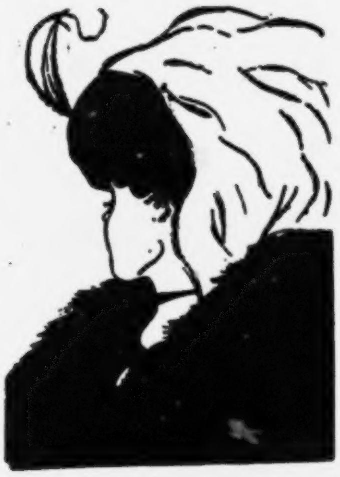
(28)

Studying a more complex illustration, like the one on your right, what does it depict according to your observations?



Most people see an old woman or a young woman, or both an old woman and a young woman. Perhaps you see something else.

Regardless of the observations you may have made, it is possible to see an old woman and a young woman. If you did not already make both of these observations, try again to see both the old woman and the young woman.



If you did not make both observations, the following pages should be helpful.

(30)

In order to see both the old woman and the young woman, you must shift from one figure to another. This type of flexibility requires keen ________________.

observation, perception, imagination, etc.

An important characteristic we display when we are being creative, is the ability to ____________________ viewpoints.

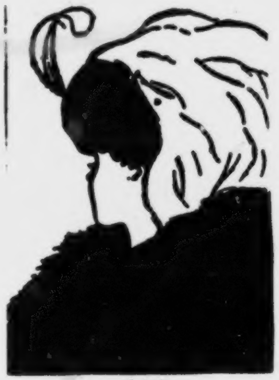
shift, change, vary, observe or express a variety of, etc.

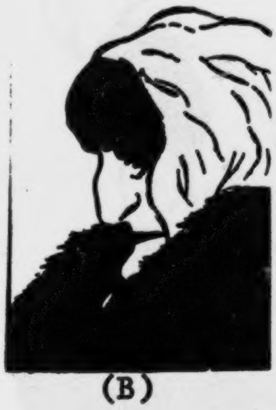
If you are still having trouble in observing the two faces in the illustration, the two separate drawings below may help.

In figure (A), the young woman's profile is turned away from you. Her chin is resting on the right collar of her coat.

In figure (B), the young woman's necklace becomes the old woman's mouth, and the rest of the young woman's face forms the old woman's big nose; the young woman's ear is the old woman's eye.

Study figure (A) and (B) in relation to the original illustration that is repeated on the next page. This should help you see both faces in the one illustration. If you like, you may tear out this page and the illustration on the next page to study further at a later time.


(A)


(B)

observe, perceive, discover, etc.

(34)

The outlines of both women are there, waiting for your eyes and mind to define the ____________________ faces.

two, different, alternate, etc.

(35)

Your senses bring raw material to your mind; but the way your mind organizes your observations is influenced by your past ________________, ____________________ and ____________________.

experience, knowledge, etc.

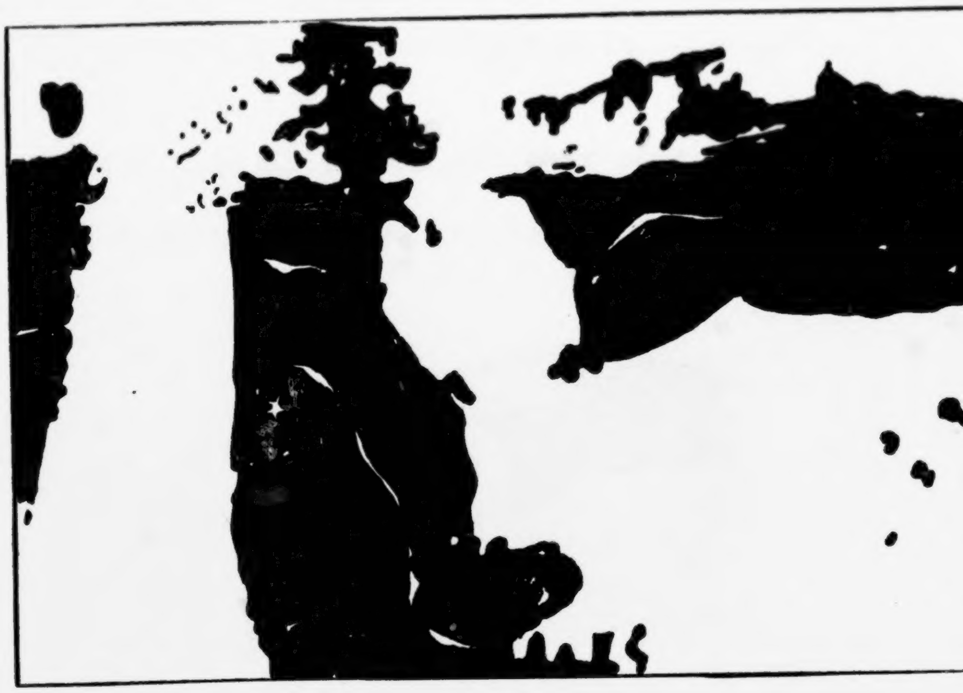
purposes, reasons, etc.

attitudes, feelings, etc.

(And you may have listed still other factors.)

(36)

Here is a still more complex example. Write your observations below.



Let us see how we might shift viewpoints in another type of situation. Look at the following two "complex situations" that were observed. Choose one for further consideration, as outlined on the next few pages.

Situation 1:

A professor asks his class to comment or ask questions after his lecture. The student who habitually responds immediately raises his hand. The professor quietly observes the rest of the class as they react to the zeal of this "eager beaver."

Some students begin to whisper. One of them places a handkerchief in the upraised hand of the zealous student, and the whole class starts to laugh.

Situation 2:

A student, Jack Williams, obtained a part-time job in a book store. He asked the manager for some book catalogues and other material to help him learn about the store. The manager, pleased by Jack's interest, supplied the materials and Jack studied them at home and during breaks.

Jack questioned the older employees about the store. They seemed quite cooperative. A few days later, however, two of the older employees took Jack aside. One said, "Jack, you are knocking yourself out for nothing. I have been in this department for seven years and hard work has got me nowhere." Don Evans, another employee, then warned, "We fellows don't like your coming early and skipping your breaks. You're showing us up by being such an 'eager beaver.'"

State below what you would have done if you were the "eager beaver" in the situation you chose from the previous page.

In assuming the role of the "eager beaver," what factors did you take into consideration in order to arrive at the decision you recorded on the previous page? List these factors below.

Because of our past experiences, our attitudes, our purposes, etc., we may differ strongly from others in the way we ________________________ the situation.

If we were to "see" each puzzling situation from another person's world, we would undoubtedly be surprised at how strange and different the _______________ would seem to be from that viewpoint.

situation, challenge, problem, world, observations, results, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Let us practice shifting viewpoints in the stated situation regarding the "eager beaver," just as we shifted viewpoints in the graphic illustrations earlier in this session.

Assume the role of one of the other students/employees (depending on which of the two situations you are considering). List below the factors you might take into consideration from that person's point of view.

(44)

What factors might the professor/manager consider in the situation -- from his own point of view? List these factors below.

"The more a man thinks, the better adapted he becomes to thinking, and education is nothing if it is not the methodical creation of the habit of thinking."

Ernest Dimnet
Author

(46)

As you have probably observed, if you use only your own personal viewpoint in looking at a situation, the relevant factors you will "see" will be only a ______________________ of the larger view that is possible.

part, portion, piece, etc.

Again assume the role of the "eager beaver." In this role, creatively define your problem as you now see it. Write this below; then list ideas that might lead to a solution.

STATEMENT OF PROBLEM: ______________________________

Ideas for solving this (Defer judgment):

Based on your best ideas on the previous page, state below the course of action which the "eager beaver" might adopt.

Perhaps this plan may be different from what you had stated on page 39. Your new plan may have been influenced by the new viewpoints you employed in observing the situation.

(49)

"Sometimes it's only a change of viewpoint that is needed to convert a seemingly tiresome duty into an interesting opportunity."

Albert Flanders

Spend as much time as you still have available as follows:

Describe on the next page, a perplexing situation which you remember -- one that would serve as an effective substitute for the situations previously used as examples. Use fictitious names. Then tell how the recalled situation was handled.

On the following pages, list factors from the viewpoint of the various persons involved, and perhaps from the viewpoint of a disinterested observer.

Then, bind together all of these "glimpses" into the situation that resulted from your shifting roles. After you do this, try to state, on the final page, another way of handling the situation.

The situation:

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(52)

Factors from the viewpoint of ______________________________ (List below)

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(53)

Factors from the viewpoint of ______________________ (List below)

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(54)

Factors from the viewpoint of ______________________ (List below)

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(55)

How the situation might have been handled better (describe below):

QUESTIONNAIRE

1. What is your general reaction to this session?

2. Was your progress through this session encouraging to you?

3. Did anything discourage you as you proceeded through this session? If so, what?

4. Were you familiar with any of the graphic illustrations that you worked on? Check any you had seen before:

   (a) the squares ____
   (b) vase-profiles ____
   (c) cubes ____
   (d) old and young ladies ____
   (e) cow ____

5. Were you successful in perceiving the following:

   (a) "infinite" piles of blocks ____
   (b) vases and silhouettes ____
   (c) lines as cubes ____
   (d) old and young ladies ____
   (e) cow ____

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #11 -- Observing Features or Characteristics - Part I

"Genius, in truth, means little more than the faculty of perceiving in an unhabitual way."

William James

"Inspiration is the impact of a fact on a well-prepared mind."

Pasteur

NAME ______________________________

SCHOOL ______________________________

DATE ____________________

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(1)

Taking a careful inventory of an object's features or characteristics requires thorough ____________________.

observation, examination, study, scrutiny, etc.

As an exercise in observation, list the features or characteristics of the pencil you have been given.

Most people list the more obvious ones shown below:

used for writing

yellow

cylindrical

wood

lead

eraser

sharpened

hexagonal

printing on side

etc.

(3)

We usually begin to describe the pencil by noting its primary function of writing. However, rather than being inherent in the pencil itself, writing is considered the pencil's primary ________________ because of its customary use.

function, characteristic, feature, etc.

(4)

The more closely and thoroughly we observe the pencil, the more possible functions we are apt to discover for it. Jot down any other possible functions this pencil might perform. (Use deferred judgment and strive for unusual functions.)

Some of the functions frequently listed are: tapping stick, phone dialer (the commercial dialer that rests in the dial may have been a refinement of this very idea!), weapon or probe, bookmark, measuring tool, pointer, dowel or plug.

Some of the less frequent are: swizzel stick, pipe-bowl cleaner, fishing bob, attention getter, slingshot, head scratcher, toothpick, nail cleaner, tongue depressor, shoe horn, roller.

Hopefully you thought of uses not even on the "less frequent" list.

(5)

Function is one of several categories under which we could make descriptive statements about any object. A grouping of similar items under one heading can be called a descriptive ____________________.

category, group, etc.

(6)

The two words we will use to describe a group of similar descriptive statements are ______________ _______________.

descriptive category, descriptive group, etc.

(7)

List some categories, besides function, under which you can describe any object more precisely.

substance
structure
color
shape
texture
sound
odor
taste
time
space
magnitude
etc.

Consider these descriptive categories one at a time. An object consists of a substance or substances. Of what substances is a shoe composed?

leather

thread

rubber

etc.

Try to name some other substances in your shoe. Think about substances which make up the main substance; think of substances which are peculiarly suited to your foot needs; think of substances used to fit the peculiar activities of your shoe. List them below.

cloth

glue

dye

metal (arch support, nails)

sponge or cushion

plastic (eyelets)

polish

etc.

(10)

All of these descriptive facts about substance compose a category for ____________ the object, "a shoe."

describing, analyzing, talking about, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(11)

Thus, in addition to the descriptive category of function, you have now explored the category of ____________________.

substance, materials, what an object consists of, etc.

(12)

The arrangement or construction of the various parts of an object is called structure. Thus another category by which we describe an object is ________________.

structure, arrangement or construction of parts, etc.

(13)

Facts describing an object's structure are facts which show the relationship of its various ______________________.

parts, segments, etc.

(14)

When we say that the refill portion of your ball-point pen is inside the plastic portion, we are making an observation under the descriptive category of

____________________________.

structure, arrangement of parts, etc.

(15)

Study the structural relationship of the ball-point pen's pocket-clip. Note that the pocket-clip is ____________________ into the plastic barrel.

molded, imbedded, made to blend, etc.

(16)

Such statements describing the ball-point pen by showing the relationship of its parts, may be grouped together under the descriptive ____________________ called ______________.

category, classification, group, etc.

structure, arrangement of parts, etc.

(17)

List all the observations you can make about the structure of the ball-point pen that was given to you. Try to discover some of the less common ones. You may then keep the pen.

Ball at tip of refill.

Ink inside refill tube.

Refill inside the plastic case.

Spring attached between the refill and the case.

Plastic pocket-clip molded to the plastic body.

Slot provided to catch the push-down button.

etc.

You may have listed some other less common observations.

(18)

The three descriptive categories mentioned so far are ______________, ____________ and _____________________.

function, purpose, etc.

substance, what it consists of, etc.

structure, arrangement or construction of parts, etc.

In addition to function, substance and structure, descriptions of an object may refer to its color. List below the color details that you note when you observe your hand.

You may have observed different colors in the cuticles of fingernails, the nails themselves, the tips of nails, veins, hair, dirt, scars, scratches, etc.

So far the descriptive categories we have emphasized in observing any object are:

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

function, purpose, use, etc.

substance, material, etc.

structure, construction, make-up, etc.

color, hue, shade, etc.

"Without speculation there is no good and original observation."

Charles Darwin
Biologist

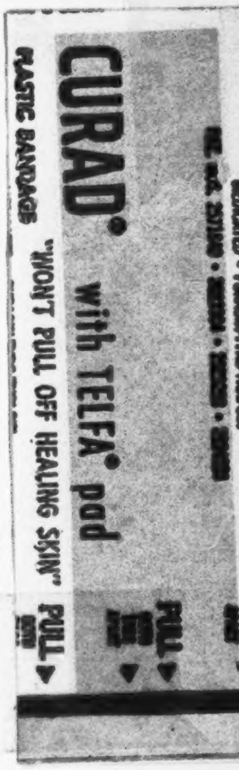
Now that we have considered the descriptive categories of function, substance, structure and color, let us examine how the last three may help us to find additional functions for an object -- uses beyond those originally attributed to the article. This is one method of invention.

On the next page, list your observations about the attached wrapped bandage under the headings of substance, structure and color. Then list possible functions that might be suggested by the descriptive facts of the first three columns. You may take the bandage off and take it apart. It need not be returned.

(23)

BANDAGE

Substance	Structure	Color	Possible new functions suggested by facts at left


CURAD®
with TELFA® pad
PLASTIC BANDAGE
"WON'T PULL OFF HEALING SKIN"
PULL

Substance: paper, cloth, adhesive, etc.

Structure: paper wrapping encloses bandage, cloth attached to strip, etc.

Color: red & green printing on white paper, yellow cloth, etc.

Function: Holders for four corners of desk blotter.
Cushion a piece of glass for storage.
Patch torn book with adhesive strip.
Fasten picture to wall.
Record child's injury on paper wrapper; let him make scrapbook of his injuries.

Select the idea you like best regarding functions for the bandage. Tell how you might improve the idea to make it more valuable to you or to someone else.

IDEA:

IMPROVEMENTS:

In this session, you have made observations with respect to four descriptive categories: function, substance, structure and color. In the next session, you will observe from the point of view of eight additional categories.

The incubation process has been emphasized in this course. Even though "incubation" time has been short, see if you can profit from having detached yourself temporarily from your earlier viewpoints on the exercises you completed in this session. Go back to each page on which you listed observations or ideas (pages 2, 4, 9, 17, 19, 23 and 24) and see if you can list new observations or ideas, perhaps less obvious ones, in each case. On each page, draw a line under your last observation or idea in order to distinguish the new ones from the earlier ones you made.

You may then spend any remaining time on the next few pages.

The descriptive categories that we utilized for thorough observation may also be helpful in suggesting criteria for our evaluation of the ideas we generate.

Try using the four descriptive categories emphasized in this session to suggest possible criteria. Suppose you had many ideas for the improvement of your ball-point pen. Write below, opposite each descriptive category, one or two evaluative criteria that might be suggested by that particular category, and that might then be applied to your ideas.

Function: ex. writing performance

Substance: ex. durability

Structure:

Color:

Carefully observe any object you have with you. List your observations, and then list the possible improvements each observation suggests.

Object: ______________________________

OBSERVATION	**IMPROVEMENTS**

(Use the next page if you have additional ideas.)

(29)

What observations might you make during "lulls" in your work if you were an attendant in a parking lot? List observations that might be of value to you, your employer, or your customers.

Example: tires that look like they need air

More Common Responses:

Makes and models of cars in lot.
Number of cars in lot at various times of the day.
Any strange activity around cars.
Mechanical trouble with cars.
Valuables left in cars.
Unusual license plates and numbers.
Type of people who use lot frequently.
Dirty cars.
Oil or gas leakage from cars.
Windshields needing cleaning

Less Common Responses:

Lights left on.
Bumps or scrapes on cars.
Loose plates.
Poor tires.
Missing hubcaps, broken aerials.
Keys left in car.
Children playing in parking lot.
Places on lot that need improvement.
Cars needing oil or gas.
Unlocked trunks.

Indicate below or in your idea notebook, one goal you would like to attain within the next month. (For example: "Line-up a part-time job for vacation period;" "find a way to take the rush out of getting ready for school in the morning," etc.) Then list a minimum of ten ways to help yourself attain the goal. Apply everything you have learned in this course so far, as you list ideas deliberately -- now and whenever else you have time. Also capture in your idea notebook, the thoughts that occur to you during incubation -- when you are not deliberately attempting to list ideas. You may also like to discuss your goal with others and add their ideas to your own.

QUESTIONNAIRE

1. I think this session was .....

2. The session was not .....

3. You have now completed enough sessions that you probably have definite impressions as to your relative feelings about each new one. How would you compare this particular session?

Check one: The best! ___ Among the better ones ___ Average ___

Among the poorer ones ___ The worst! ___

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #12 -- Observing Features or Characteristics - Part II

"Originality is simply a fresh pair of eyes."

Woodrow Wilson

"Creativity is the art of taking a fresh look at old knowledge."

anon.

NAME ______________________________

SCHOOL ______________________________

DATE ____________________

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In the last session we listed our observations with respect to the following descriptive categories.

1. ____________________________

2. ____________________________

3. ____________________________

4. ____________________________

function, use, etc.

substance, material, etc.

structure, make-up, construction, etc.

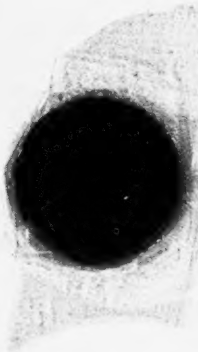
color, shade, hue, etc.

(2)

Looking at an object from still another point of view, let us consider the category of shape. Our list of descriptive categories will now include function, substance, structure, color and ______________________.

shape, form, outline, etc.

List as many facts as you can which describe the attached penny from the standpoint of shape. Remove it and examine it.



thin

flat

round

rim extends beyond basic coin thickness

sculptured figure of Lincoln

raised leaves

raised letters

etc.

(Keep the penny and see if you discover any other shape-details later.)

(4)

In addition to function, substance and structure as descriptive categories, we have studied ________________ and ____________________.

color, hue, shade, etc.

shape, form, outline, etc.

(5)

Texture is the manner in which the particles or small constituent parts of a substance are disposed or united. Since this may be important in describing an object, we shall consider ______________________ as another descriptive category.

texture, "feel," etc.

Do not look at the next page. Slide your hand under this sheet, feel the surface of the next sheet, and list below your observations as to what you think it might be. List as many alternatives as you can. Let your imagination roam!

The following are some of the diverse identifications people have listed for this sheet of Velour paper.

sandpaper
leather
felt
suede
velvet
blotter
fur
cloth

wool
tissue
cotton
coaster bottom
pile from miniature rug
peach skin
inside sole of shoe
smooth block of wood - finely sanded

banlon sweater
flour on pie crust
pansy petal
pussy willow
mohair
milkweed
knitted yarn
jewelry box lining
etc.

(8)

Keeping the definition of texture in mind, list below as many descriptive facts as you can about the texture of your billfold (or your purse, belt or shoe if you have no billfold with you). Examine the object closely.

Here are some examples regarding the billfold:

Outside surface is smooth, rough, etc.

Plastic picture containers are smooth and glossy.

Printing is impressed.

Stitching is somewhat perforated.

Metal clip is smooth but solid.

Edges of plastic picture containers are sharp.

Inside leather is smooth but has indentations.

Leather edge is solid but not rough.

etc.

You may have listed other less common observations in regard to the texture of your billfold.

(9)

The six descriptive categories mentioned so far are 1) function, 2) substance, 3) structure, 4) color, 5) ______________ and 6) __________________.

shape, outline, form, etc.

texture, "feel," etc.

Now observe the attached bobby-pin from the standpoint of at least three of these descriptive categories. List the descriptive category first and follow it with your observations.

If you observed the bobby-pin closely, considering each descriptive category separately, you were probably able to list quite a few observations, even for such a simple object.

Three additional ways of describing an object might be with reference to sound, taste and odor. These categories can provide important facts in finding other uses or possible improvements for many items. For example, an observant newspaper publisher substantially increased circulation by adding the odor of onions to his newsprint in a geographical region where onions were a favorite dish. Sound, odor and taste might stimulate new ideas for improving any object or situation.

Hitting a bell produces a fact in the _______________ category.

Biting an apple provides a fact in the _______________ category.

Cooking cabbage gives a fact in the _________________ category.

sound, noise, tone, etc.

taste, flavor, etc.

odor, smell, etc.

Jo

In a quiet room, what facts within the sound category might you notice about a toothpick? Take it off the page and see how many sounds you can create with it. List them below.

scratching

scraping

rubbing

sound of toothpick breaking

sound when dropped onto table

vibration when snapped

etc.

(13)

Tear off the last sheet of this booklet and list all the sounds that a sound-effects man at a radio station might create by using only that piece of paper.

horses riding away, footsteps

ripping

burning of paper, fire

tearing

electricity, lightning

thunder

wind, blowing

crackling

crumpling, crunching

raking leaves, leaves blowing

opening a letter or newspaper

munching

turning a page

etc.

"Search for some thoughts, thy own suggesting mind, and others, dictated by heav'nly power, shall rise spontaneous."

Pope

Write below a variety of sounds suggested by crumpling the piece of paper. Let your imagination roam. See what unusual sounds it may suggest to you.

busy office

wind blowing through trees

person eating apples

waves, water

wind

fire crackling

crumpling paper

animal noises

etc.

If you really allowed your imagination to roam, you probably listed sounds that are not shown here -- sounds that you recalled as you let your imagination play upon your own unique experience.

Under the broad descriptive category of taste, list below some facts you might observe while consuming an ice-cream soda.

paper taste of straw

coolness of the ice cream

refreshing lift of the soda water

wax from the cup

sweetness of syrup

refreshing carbonation taste

flavor

etc.

(16)

The odor facts of a pack of matches may at first seem limited to the sulfur. But after the pack has been used, we can detect a distinct odor on the striking surface. Other parts of the pack that might provide some distinct odors are:

paint

paper

staples (metal)

wax around the tip of the match

sandpaper

sulfur

ashes, dust

ink

etc.

(17)

The last three descriptive categories we have mentioned are:

1) ______________________ 2) ____________________ and 3) ________________

sound, tone, etc.

taste, flavor, etc.

odor, smell, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(18)

Three additional descriptive categories which you could apply to any object or situation are time, space and magnitude. The descriptive categories listed so far are function, substance, structure, color, shape, texture, sound, taste, odor, ________________, ________________ and ____________________.

time, duration, the "when," etc.

space, location, etc.

magnitude, size, etc.

In addition to noting readily observable facts about any object, you may also begin, through close observation, to raise many questions such as: "When did the plastic bandage first make its appearance?" Of the categories of time, space and magnitude, the preceding question refers, of course, to the descriptive category of ____________________.

time, the "when," etc.

On this and the next few pages, indicate the descriptive category to which each question pertains.

"How much do the shoes weigh?" Of the categories of time, space and magnitude, this question refers to the descriptive category of ______________________.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(21)

"Is there enough room in a billfold to include a transistor radio?"

Descriptive category: ______________________

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(22)

"How many stitches are there in the shoes?"

Descriptive category: ______________________

magnitude, number, etc.

(23)

"What is the average service expectancy of a billfold in normal use?"

Descriptive category: ____________________

time, duration, etc.

(24)

In the beginning of our study of the observation booklets, we were probably not aware of the many ____________________ that can be observed in a simple object.

facts, details, categories of details, things, etc.

(25)

After applying all of the descriptive categories, we learn that we can ________________________ much more about an object.

observe, notice, learn, etc.

However, from the many questions that were raised, we also noticed that the more we learn by observation, the more we realize how much ________________ there is to learn.

more, additional, etc.

You have studied twelve descriptive categories that are helpful in finding facts. These can help you to learn more about any object. List the twelve descriptive categories below: (Refer to previous pages if necessary.)

function, purpose, use, etc.

substance, material, etc.

structure, make-up, etc.

color, hue, shade, etc.

shape, outline, form, etc.

texture, "feel," etc.

sound, noise, tone, etc.

taste, flavor, etc.

odor, smell, etc.

time, the period, the "when," etc.

space, location, etc.

magnitude, size, etc.

(28)

List below any additional categories you can think of for describing an object or a situation:

The following is one group of categories that news reporters use as a checklist in ascertaining whether they have the pertinent facts about a situation:

who

what

when

where

why

how

You may well have listed other useful categories.

In summarizing "observation," let us take a moment to relate it to one of the creative problem-solving phases discussed in an earlier session. Looking is not insurance that we observe anything at all. If we observe (when we look) then we become more sensitive to problems or challenges all about us.

Observe the articles of clothing which you are wearing, -- your shoes, your shirt, blouse, etc. List below a few problems which might be suggested by your observations. (For example, "How to keep buttons from breaking or tearing off;" "How to keep cuffs from soiling;" etc.)

The last several sessions have covered in some detail the process of observation and how it can help us become more sensitive to challenges. In the next session, you will practice breaking down a problem so as to "divide and conquer." You will also have another opportunity to try your hand at deliberate application of the methods you have studied.

In the meantime -- Are you using your idea-book?

"Glance at a newspaper or a magazine, listen to people talk, look at the things around you. Do these, and an inexhaustible horde of ideas will come to you from all sides like showers of meteors. But like meteors, they are fleeting and soon gone if not jotted down."

Frank H. Bennett

Spend as much time as you still have available on this and the remaining pages. You may spend your time on the pages in whatever order they interest you most.

By observing a pencil minutely, you probably can note many more facts about this very simple object than you observed at the beginning of the previous session. However, it is likely that these discoveries may also raise many questions in your mind -- just as any new discovery usually brings more questions than answers to a creative, inquisitive person. Many of your questions represent facts you would now like to have, but can't observe or discover without further research.

List on the next page all such additional questions you might raise about the pencil. Don't worry if the questions seem unimportant or if you feel that you should know the answer.

Example: When was the eraser first introduced?

When we try to solve any type of problem, we must try to break away from the blocks of habit, "set," "functional fixedness," "pre-conceived notions," etc. (such as the pre-conceived notions we had in our first observations of the pictures shown in the earlier session, and in our original image of the pencil). Once we have broken away from habitual viewpoints, we are able to see new meanings in any object or situation, just as we were able to see new meanings in the pictures. In our examination of the pencil, we can probably now visualize many new possible functions or uses. With our new insights, we may now be able to suggest many more possible improvements in any object or situation.

For example, consider the following two observations concerning the striking surface of a match pad: (1) striking surface is on front; (2) sparks can ignite other matches. What improvement is suggested by these two observations? State below:

Placing the striking surface on the back.

Designing the matchpad so that matches could be pulled out without a cover that opens.

etc.

Record all the sounds and odors you can observe as you sit where you are.

Examples: ticking of watch, cigarette smoke, etc.

QUESTIONNAIRE

1. Please give your general reactions to the session.

2. Was your progress through the session encouraging to you?

3. Did anything discourage you as you proceeded throgh the session? If so, what?

4. Explain briefly what you gained from this session.

5. Would you change or eliminate any examples or pages? If so, which ones?

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #13 -- Part A - Breaking Down the Problem

"Reason can answer questions, but imagination has to ask them!"

Ralph W. Gerard

NAME ______________________________

SCHOOL ______________________________

DATE ____________________

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(1)

After reaching the broad, idea-finding statement of a problem, the next step is to ______________________________ the comprehensive, general challenge into its sub-problems.

break down, break up, reduce, simplify, separate, divide, etc.

We might call these sub-problems the approaches toward solving our overall

_________________________.

challenge, problem, etc.

As we think of ideas pertinent to the broad challenge, it becomes apparent that there are many ______________________ to meeting the challenge.

ways, methods, approaches, means, paths, specific problems, solutions, etc.

We can delve deeper into almost any general idea that we think up, and turn it into a sub-problem by asking, "How might I carry out this idea?" Thus, each general idea (approach) that comes to mind regarding a problem can subsequently be converted into a sub-problem (for attack in depth) simply by asking " ________________?"

How?

In what ways?

etc.

(5)

By listing all conceivable approaches toward solving a broad, overall problem, we may then convert each such approach into a _____-___________ for idea-finding in depth.

sub-challenge, sub-problem, sub-topic, "how-approach," etc.

(6)

We can then start with a creative attack of the particular sub-problem that seems to offer the ______________________ promise.

most, greatest, best, etc.

(7)

Thus we will at least have looked at all possible approaches, and will not have jumped blindly at the first ________________ that came to mind.

solution, idea, thought, possibility, approach, answer, method, etc.

It might well be that our tenth or twentieth or thirtieth approach would prove much more fruitful to explore than the ____________________ ones listed.

first, earlier, previous, other, etc.

Specific questions, as opposed to broad ones, tend to spur the imagination because we usually have not thought of these more specific approaches before. Hence, we don't have ready-made ______________________ for these questions.

answers, solutions, ideas, etc.

(10)

Thus, we force our imagination to create ____________________ ideas.

new, novel, original, unusual, additional, etc.

A helpful technique of thinking up sub-problems is to consider the reasons why the ________________________ problem cannot be solved effectively.

broad, overall, general, original, etc.

For example, if the challenge is to speed up service in the cafeteria, the fact that there is not enough help might be one _____________________ why this cannot be done.

reason, answer, excuse, etc.

Therefore, one approach or sub-problem to the challenge of speeding up service becomes:

"How might we ____."

"How might we provide more help?"

"How might we make more efficient use of the present employees?"

etc.

(14)

Another technique for discovering sub-problems is to ask the causes of the situation which created the general or overall ______________________.

challenge, problem, etc.

(15)

These causes, of course, are related to our observations -- our information -- about the challenge. The causes are thus the ____________________ of the case.

facts, data, factors, etc.

(16)

In other words, we can regard the available facts relating to the general, overall problem as a source of further _____-problems.

sub-, specific, etc.

(17)

Consider this example: If we had the general challenge of how to get more students to attend a dance, we might ask, "What are the _______________ for poor attendance?"

reasons, causes, etc.

(18)

If the facts showed us that one cause was "lack of interest," a sub-problem might accordingly be stated as "How to ____."

stimulate interest

overcome apathy

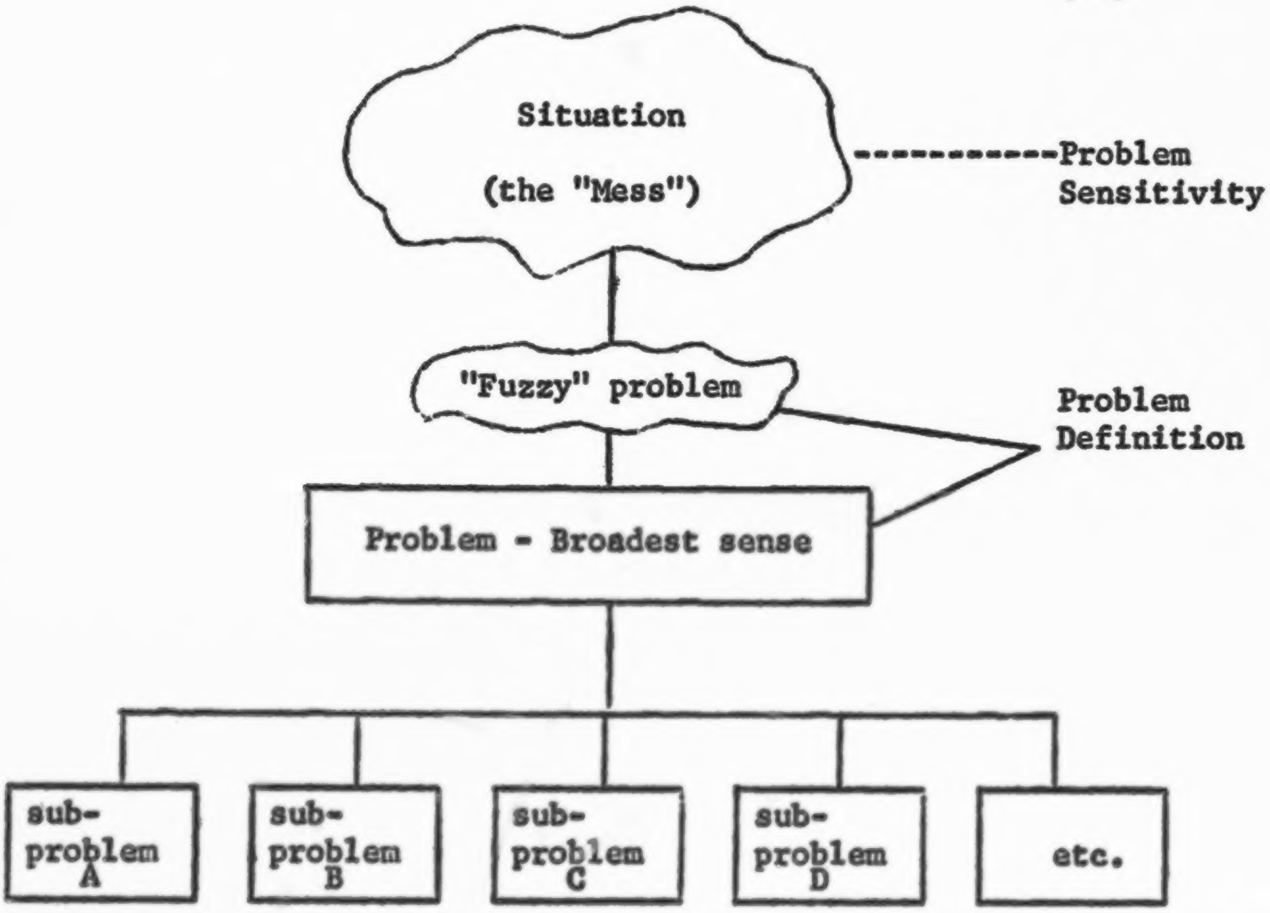
etc.

(19)

We studied earlier how to discover many statements of a problem, including statements more basic than those which might first come to mind. Now, we have explored how to break down a very broad or overall problem into a variety of ______________.

sub-problems, specific challenges, approaches, etc.

Re-study the diagram on the next page; then move on to Part B of this session, in the separate booklet that was provided.


Situation
(the "Mess")
Problem Sensitivity
"Fuzzy" problem
Problem Definition
Problem - Broadest sense
sub-problem A
sub-problem B
sub-problem C
sub-problem D
etc.

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

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State University of New York at Buffalo

Session #13 -- Part B - A Personal "Obstacle-Type" Problem

"As soon as you can say what you think, and not what some other person has thought for you, you are on the way to being a remarkable man."

James M. Barrie

"The minute you say that a thing cannot be done, you are through with that thing. And no matter how much you know -- even if you are an expert -- if you say it can't be done, you are all through. And someone knowing nothing about it, but thinking it can be done, now is a better man for that job than you."

Harry Myers

NAME ________________________________

SCHOOL ______________________________

DATE ____________________

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You will now have the opportunity to practice "breaking down" a problem as an integral part of the entire procedure of creatively meeting a challenge. In an earlier session, you used a five-page set of worksheets which covered the five phases involved in a methodical, yet creative attack upon a challenge: Fact-Finding, Problem-Finding, Idea-Finding, Solution-Finding and Acceptance-Finding.

Again, we must stress the fact that one cannot supply a rigid structure for so dynamic a process as creative problem-solving. While the five phases or steps provide a helpful guide, they are not an inflexible formula for meeting a challenge. They should be adapted to suit the special needs of each particular problem. Therefore, we have attached a set of blank sheets at the end of this booklet. Feel free to add or substitute these blank pages for the worksheets at any stage where the blank page seems more comfortable to you than the printed guides.

The creative process is a fluid and flexible one, during which one may find it advisable or necessary to back-track at any particular phase and to repeat one or more phases before continuing. Thus, there should be continuous review and amplification of earlier worksheets as the process unfolds.

As in the previous set, emphasis here is upon piling up alternatives at each of the five steps, by deferring judgment first, evaluating later. Research has shown that extended effort in approaching a challenge creatively leads to a larger percentage of good ideas, as more and more alternatives are produced. Like the person who invests money to obtain greater rewards later, the creative person foregoes the immediate reward of applying his first idea, in expectation of a better solution (greater reward) ultimately.

Remember -- there is never a best solution in approaching a challenge creatively -- only a "best" solution so far as you have gone. A suitable solution may actually be found at any stage of the process, in which case some of the worksheet steps may become academic. However, by expending more effort probing into each of the steps, you are likely to reach a solution closer to the "perfect" one.

Theoretically there is no limit to the number of alternatives that might be listed on each of the worksheets. The amount of time you should consciously spend on a problem, therefore, becomes a matter of practical judgment. On the other hand, you will want to be forever alert to possible improvements upon your solution, even after it is put into effect.

Throughout all stages of the creative process, incubation can prove as valuable and productive as the more "deliberate" effort expended. Therefore, you will want to keep your "mental computer" as fully loaded as possible with respect to your challenge, in order to increase the chances for new ideas to occur through incubation. We suggest that you occasionally review all of your notes on the challenge. See if this doesn't help you to think of new ideas later -- ones you can enter into your idea-notebook any time they occur to you. These thoughts should then be studied in relation to those already listed, the next time you are ready to "work" on the problem.

The stimulation of other minds can also be introduced to advantage in any of the stages. While the counsel of another person or of a group is not essential, it can be an extremely valuable way of enriching our own background of knowledge and experience. Therefore, you may find it valuable as well as interesting to talk with others about the challenge on which you are working. Review the chapter from Applied Imagination on group brainstorming (provided to you with this session's booklets). Try to gather a few friends to practice this method of applying deferred judgment in a group.

> "Many ideas grow better when transplanted into another mind than in the one where they spring up."
>
> --- Oliver Wendell Holmes

If you should finish before the end of the period, go back to each sheet and see how many more thoughts you can add (for each of the five phases). In each case, try to add at least 20% more ideas than you listed the first time. Practice "stretching" your mental muscles even if you feel you have already reached an adequate plan of action regarding your challenge. As indicated earlier in the course, this practice is a requisite in improving any skill. Remember the example about our unrecognized ability to call fully upon our minds (bird-naming exercise)!

* * *

On the previous set of worksheets, we provided you with a problem that was an "opportunity" problem. Nothing had to be done about the situation; but there was opportunity to develop interesting and valuable ideas to help the situation.

This time, you will work on an "obstacle-type" problem. This problem will be rather specific, and one wherein some action must be taken. The sample problem given in the adjacent pages of the worksheets is also of this type. Furthermore, the sample problem happens to be one of a technical nature. It has been chosen in order to illustrate the diversity of application of the creative process.

If you would prefer, you may substitute an "obstacle-type" challenge of your own for the challenges that are offered on the next page. It should be a specific problem you are facing where you must take some action. If you decide to use your own problem, please explain the situation briefly at the bottom of the next page. In making the decision as to whether to use one of the given problems or your own problem, be sure the one you choose is interesting and important enough to warrant your intensive creative effort in the total process of Fact-Finding, Problem-Finding, Idea-Finding, Solution-Finding and Acceptance-Finding.

CHALLENGES

Read the challenges below. Circle the one you find most interesting, or explain your own at the bottom. Then ignore the others and proceed to attack the chosen problem as directed on Worksheets I through V.

1. Your close friend is getting married. You have been asked to participate as a wedding attendant. You want to participate in the wedding but you have neither the funds nor the time. It is your examination period in college.
2. You have planned a party. After all preparations are made and the evening has arrived, you await the arrival of your guests. As you sit in the living room waiting, your eyes fall with horror on the lower shelf of your bookcase. There are the invitations to your party! All twenty of them are sealed, stamped and held by a rubberband!
3. You want to borrow your family car for a 200 mile trip. Since you haven't actually ever borrowed it to take a trip before, you know your parents will be hesitant and worried about it.
4. You have been invited to dinner and the theater on your Thanksgiving Holiday with someone you have been wanting to date for some time. Your parents feel you should eat at home on Thanksgiving.
5. If you use your own "obstacle-type" challenge, state it here: (Choose one that you presently face or will face, not one you already have solved.)

NOTE: Regarding these sample worksheet illustrations, the problem is presented at the bottom of this page.

WORKSHEET SET

I. Fact-Finding

Concentrate on column 1 *first*; then go on to columns 2 and 3.

What other facts would you like to have about the problem? (List *Fact-Finding questions*, not judicial or creative ones. Don't worry whether or not you can get the information; if you would *like* it, raise the question.)	Where might the answers to the most significant questions be obtained? For each of the *circled* questions list all conceivable sources of information.	When you are able, investigate your circled sources for further information on the problem. Meanwhile, assuming you cannot do this now, move on to Worksheet II.
① What has been done under similar circumstances in the past?	a. foreman b. engineers ⓒ "oldtimers" d. superintendent e. Manufacturer	Never happened before.
2. How much did the float cost?		
③ What would happen if the float were not repaired quickly?	a. engineers ⓑ foreman c. supt. d. workers in other dept.	An expensive shut down is threatened.
4. Where can the		

PROBLEM

The problem below, which is the one being attacked on this set of sample worksheets, was taken from Alex F. Osborn's "Supplementary Guide" for instructors. Study these illustrative pages (opposite each Worksheet you will use) to see how the worksheets are utilized in this sample illustration.

How should the welder solve the problem?

A valve-control float, a stainless steel cylinder of about a gallon size, made especially for its job in a chemical plant, had very gradually lost buoyancy. It was detected just in time to avoid serious trouble. Until fixed, it could not be relied upon.

A welding shop worker received orders to repair the leak immediately. On shaking the float, about a quart of water could be heard sloshing around inside. But none came out anywhere. Even under careful inspection the leak was invisible.

WORKSHEET SET
(Note sample set on left)

I. Fact-Finding

Concentrate on column 1 first; then go on to columns 2 and 3.

What other facts would you like to have about the problem? (List Fact-Finding questions, not judicial or creative ones. Don't worry whether or not you can get the information; if you would like it, raise the question.)	Where might the answers to the most significant questions be obtained? For each of the circled questions list all conceivable sources of information.	When you are able, investigate your circled sources for further information on the problem. Meanwhile, assuming you cannot do this now, move on to Worksheet II. (You will note in the sample problem that some of the answers were found.)
(Go back and circle the most significant questions.)	(Go back and circle the best sources.)	

(Use additional pages as needed.)

II. Problem-Finding

List all the creative-type questions (problems or challenges) suggested by the problem. (Such as: "How might I...?", "What ways might I...?", "What ideas might I produce to...?", etc.) If "fact-finding" or "judicial" type questions occur to you, convert them to "creative" types by stating as, "How might I find out...?", or "How might I decide...?"

After listing several statements, stop a moment and ask, "What is the real problem?" "What is my basic objective?" "What do I want to accomplish here?" Ask "Why" of each problem you have listed. ("Why do I want to do this?") As a result of these questions you ask yourself, try to restate and broaden your problem. For example, you will recall the illustration asking "Why" of the problem, "How might I catch the mouse?" led to the restatement, "How might I get rid of the mouse?" Try, similarly, to find problem statements (questions) that allow you the largest number of possible approaches. Try paraphrasing, changing the verbs in your statements, etc. Keep listing as many additional "How might I" questions as you can about the situation.

1. How might I find the leak?
2. How might I get the hole sealed?
3. What sealant might I use to coat the entire float without bothering to find the hole?
4. How might I keep the water out?
5. How might I weld the hole shut?
6. How could hole be kept at top, so water would not seep in?
7. How might I repair the float?
8. How might I prevent loss of buoyancy?

⑨ How restore and maintain buoyancy?

After having broadened the problem, what other creative aspects or approaches ("sub-problems") can you see that you didn't list earlier? What are some of the causes of the problem? Convert these into additional "How might I" questions as you did in Part A of this session.

10. How maintain control of valve?
11. How might I eliminate the valve?
12. What else might be substituted or adapted satisfactorily to replace the float?
13. How might the hole be enlarged so it might be found?
14. How might the float be modified to cause the hole (and water already in it) to be of no concern?

Now circle the best, most promising statement for creative attack (from all listed). Perhaps it is the one that would give you the greatest leeway, the largest number of approaches or areas for exploration, -- the one that includes most of the other ones. Or it may be one of the narrower statements that is really the crux of the situation. In any event, choose the one which is most significant to you, -- the one most in need of creative attack.

NOTE: You may want to go back and consider additional fact-finding on the first Worksheet, now that you have restated your problem. With the new wording, you may have other fact-finding questions that you would like to note for further exploration. (Use additional pages as needed.)

II. Problem-Finding

List all the creative-type questions (problems or challenges) suggested by the problem. (Such as: "How might I...?", "What ways might I...?", "What ideas might I produce to...?", etc.) If "fact-finding" or "judicial" type questions occur to you, convert them to "creative" types by stating as, "How might I find out...?" or "How might I decide...?"

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Now circle the best, most promising statement for creative attack (from all listed). Perhaps it is the one that would give you the greatest leeway, the largest number of approaches or areas for exploration, -- the one that includes most of the other ones. Or it may be one of the narrower statements that is really the crux of the situation. In any event, choose the one which is most significant to you, -- the one most in need of creative attack.

NOTE: You may want to go back and consider additional fact-finding on the first Worksheet, now that you have restated your problem. With the new wording, you may have other fact-finding questions that you would like to note for further exploration. (Use additional pages as needed.)

III. Idea-Finding (deferred judgment)

Problem Statement selected on previous sheet: (Be sure your statement is clear, concise, as brief as possible, worded as a "telegram;" also, be sure that it starts with words such as "What ways might I...?")

WRITE STATEMENT HERE: In what ways might the buoyancy be restored and maintained

IDEAS (tentative leads to solution):

1. Look for hole under Microscope.
② Use a block of wood or other material for a temporary float.
③ Replace with a rubber or plastic float that can be thrown away when it is damaged.
4. X-ray the float to find the hole.
5 Drill a hole in the float and fill it with detergent and watch for bubbles.
6. Drill a hole in the float and fill it with colored liquid watch for seepage.
⑦ Drill out hole to empty water-weld shut; then paint the entire float with liquid metal.
⑧ Drill small hole at one end, too small for water to drain out without an air hole inlet. Then run hand all around until water stops flowing because hand is covering pin hole.

If you are "running out" of ideas, look at some of your more specific problem statements ("sub-problems") on the previous page for fresh approaches in your search for ideas.

⑨ Put entire float into a rubber balloon to seal hole shut.
⑩ Drill a hole, look into it under a strong light to seek pinpoint hole.
⑪ Heat the float. This will cause steam to escape and indicate the hole.
12 Drill hole, empty water, insert strong perfume, smell for hole.
13. Drill hole, then blow through, feel for air escape.
14. l. l. Blow in air under pressure.

Now go back and circle the ideas that seem to offer the best potential (judgment).

NOTE: If your original problem statement was quite broad, you may find that your ideas listed on this sheet are really "sub-problems." For example, consider the problem, "How might I increase sales of our yearbook?" You might list ideas such as, "interest more students," "step up advertising," etc. In cases like this you would choose one of these "approaches" at a time, and then probe for more specific ideas. ("How might I interest more students?", "How might I step up advertising?", etc.) In such cases you will want to repeat this Worksheet (using one of the more specific "sub-problems" as the problem statement each time), and follow all subsequent Worksheet procedures for each of these approaches, or for the one best approach. (Use additional pages as needed.)

III. Idea-Finding (deferred judgment)

Problem Statement selected on previous sheet: (Be sure your statement is clear, concise, as brief as possible, worded as a "telegram;" also, be sure that it starts with words such as "What ways might I...?")

WRITE STATEMENT HERE:

IDEAS (tentative leads to solution):

If you are "running out" of ideas, look at some of your more specific problem statements ("sub-problems") on the previous page for fresh approaches in your search for ideas.

Now go back and circle the ideas that seem to offer the best potential (judgment).

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IV. Solution-Finding

First, list criteria (read explanation); next proceed as mentioned at bottom.

Evaluation Criteria: What are the "yardsticks" by which you can mentally test the effectiveness of each of your ideas? These criteria are really a further measure of your sensitivity to problems - problems that might be implicit in changes that would be brought about by each idea. Try to anticipate all effects, repercussions, consequences. Look over the facts of the situation for leads as to important criteria.

	CRITERIA						Indicate Decision Below			
	Time	Cost	Reliability	Durability	Availability of materials	Safety	Use Now	Hold	Reject	Modify (How?) (Try to improve ratings on criteria)
2.	G	G	F	P	F	G		✓		
3.	P	G	F	F	F	G		✓		
7.	F	G	F	P	G	G			✓	
8.	P	G	F	G	G	G			✓	
9.	G	G	F	P	F	G		✓		
10.	F	G	P	G	G	G			✓	
11.	G	G	G	G	G	P	✓			
14.	F	G	G	G	F	F		✓		heat while rotating in tub of water to avoid danger of explosion

Line this margin up with your ideas on previous Worksheet. Evaluate those circled on Worksheet III as offering the best potential. For each of these ideas, indicate a rating in each block e.g. - G ("good"), F ("fair"), P ("poor"), DP ("doesn't pertain"), etc. Then make a decision regarding each of the circled ideas (based on its ratings under the various criteria) by checking or commenting in the columns under "Decision."

IV. Solution-Finding

First, list criteria (read explanation); next proceed as mentioned at bottom.

Evaluation Criteria: What are the "yardsticks" by which you can mentally test the effectiveness of each of your ideas? These criteria are really a further measure of your sensitivity to problems - problems that might be implicit in changes that would be brought about by each idea. Try to anticipate all effects, repercussions, consequences. Look over the facts of the situation for leads as to important criteria.

CRITERIA						Indica Decisi Below			
						Use Now	Hold	Reject	Mod (Ho (Try impr ratings crite

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V. Acceptance-Finding

NOTE: This sheet is designed to help you use creative thinking in preparing to put an idea into effect. This should be followed for each idea you select for use.

First idea (or combination of ideas) to be developed - (Selected from previous Worksheet)

WRITE IDEA HERE: Heat float while rotating in tub of water, to cause jet of steam to escape, then weld shut.

Column A Ways of implementing, carrying out, accomplishing, gaining acceptance for, insuring effectiveness of, improving, etc. -- the above idea (deferred judgment)	Column B Who, when &/or where?	Column C How &/or why? (How gain acceptance and enthusiasm of others for idea)
① explain to foreman		roll in water while heating till see steam
② take necessary safety precautions		
3. place on stove	Becasue of the nature of the problem, the who, when and where seem to be myself, here and now! (for Nos. 1, 2, 5 and 6)	
4. boil in tub of water		play flame back and forth across float
⑤ heat with welding torch		
⑥ force most of water out before welding shut		
7. Drill hole when find spot, empty water out and weld shut.		mark spot where you see steam. Weld after most of water steams out
⑧ look closely for additional holes	Have someone else watch for holes with me.	watch for any jets of steam as rotate all surfaces of float in the water.
⑨ Suggest obtaining a replacement float to have on hand for emergencies.	to foreman in the department & suggestion committee	Suggestion box
⑩ Develop a system of automatic detection of future leaks.	myself & couple of buddies foreman & at lunch at my home & after work ½ hr. each day	Think through together

Now go back and circle the best ones in Col. A (Judgment); then for each circled one, list further thoughts re: the who, when, where, how and why, as indicated in Cols. B & C. Search for several alternatives in Cols. B & C for each item circled in Col. A. Then circle the best alternative(s) in each case.

V. Acceptance-Finding

NOTE: This sheet is designed to help you use creative thinking in preparing to put an idea into effect. This should be followed for each idea you select for use.

First idea (or combination of ideas) to be developed - (Selected from previous Work sheet)

WRITE IDEA HERE:

Column A	Column B	Column C
Ways of implementing, carrying out, accomplishing, gaining acceptance for, insuring effectiveness of, improving, etc. --- the above idea (deferred judgment)	Who, when &/or where?	How &/or why? (How gain acceptance and enthusiasm of others for idea)

Now go back and circle the best ones in Col. A (Judgment); then for each circled one, list further thoughts re: the who, when, where, how and why, as indicated in Cols. B & C. Search for several alternatives in Cols. B & C for each item circled in Col. A. Then circle the best alternative(s) in each case.

QUESTIONNAIRE

1. What did you like most and/or find most helpful about the session?

2. What did you like least and/or find least helpful about the session?

3. Was your progress through the session encouraging to you?

4. Did anything discourage you as you proceeded through the session? If so, what?

5. How would you compare this particular session with earlier ones?

Check one: The best! ___ Among the better ones ___ Average ___

Among the poorer ones ___ The worst! ___

6. Explain briefly what you gained from this session?

7. Would you change or eliminate any examples or pages? If so, which one?

8. Do you have any suggestions for improving the session (to make it more interesting, more effective, etc.)? If so, please write these and any other comments below.

R

ED01

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #14 -- Idea-Finding: Introduction

"The mind has a great wide door, through which gossip and rumors can rush in with ease; but a new idea can hardly get in without a set of burglar tools."

Anon.

"The fixed person for the fixed duties who in older societies was such a godsend, in the future will be a public danger."

Alfred North Whitehead

NAME ______________________________

SCHOOL ____________________________

DATE ____________________

---

*This project is supported by the U. S. Office of Education (Grant No. 7-42-1630

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(1)

In previous sessions of this course, you used the descriptive categories to help you list all of your ____________________ concerning objects.

14

observations, perceptions, descriptive ideas, etc.

(2)

In making observations, you became aware of how an object can be described by means of many ________________________ categories.

descriptive, definitive, different, observational, etc.

(3)

Using such categories as a check-list for our observation helps us to become

______________________ of more details concerning an object.

aware, conscious, cognizant, observant, etc.

(4)

When we are aware of all the details of an object, we are better able to generate ideas for improvements or ________________ uses for it.

new, more, better, other, different, effective, etc.

(5)

We generate ideas for new uses and improvements by manipulating the many elements or details that we ____________________ about the object.

observe, notice, know, etc.

(6)

Just as we form new designs by manipulating the particles we see in a kaleidoscope, we form new ideas by ______________________ the details (observations) we visualize in our minds.

manipulating, working with, operating on, rearranging, etc.

(7)

The more particles in a kaleidoscope, the more new designs; the more facts and observations in our minds, the more new ______________________.

ideas, thoughts, concepts, etc.

Our imagination creates new ideas in many ways. Just as we developed a list of descriptive categories to help us make observations, we can devise a list of manipulative ____________________ to help us use our observations.

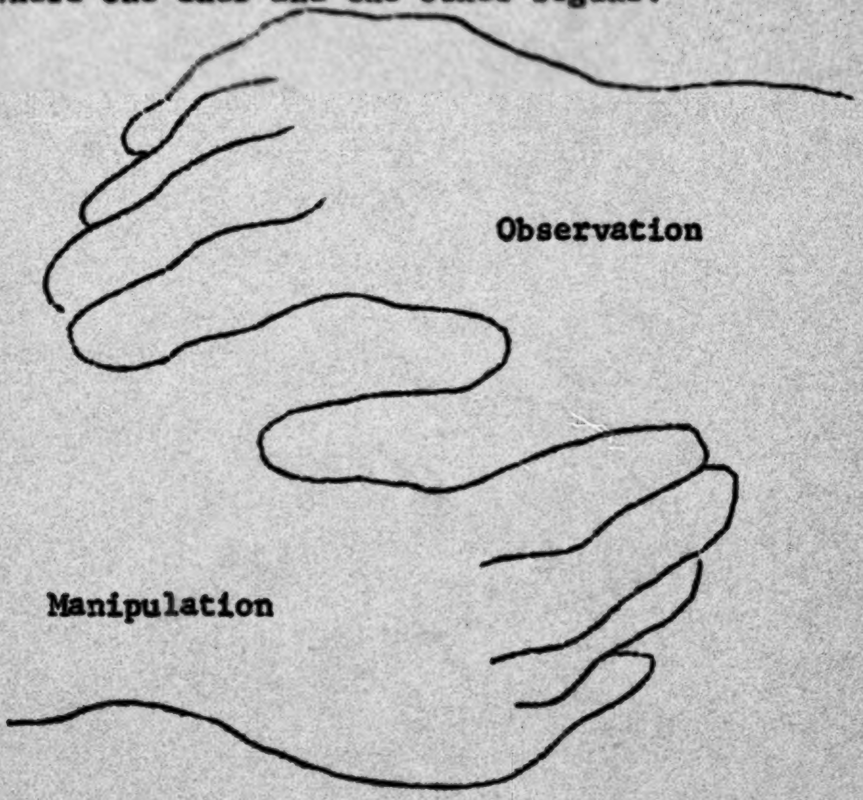
categories, classifications, classes, ideas, devices, etc.

(9)

Manipulative categories are simply ways in which observed facts or details can be manipulated to create new ________________________.

ideas, thoughts, concepts, etc.

In generating ideas, we use observation and manipulation "hand in hand." It is not always possible to tell where one ends and the other begins.


Observation
Manipulation

One possible way to change something is to ENLARGE it. List below some other manipulative verbs which suggest ways in which an object or situation might be changed to improve it.

enlarge

magnify

reduce

minify

rearrange

combine

reshape

etc.

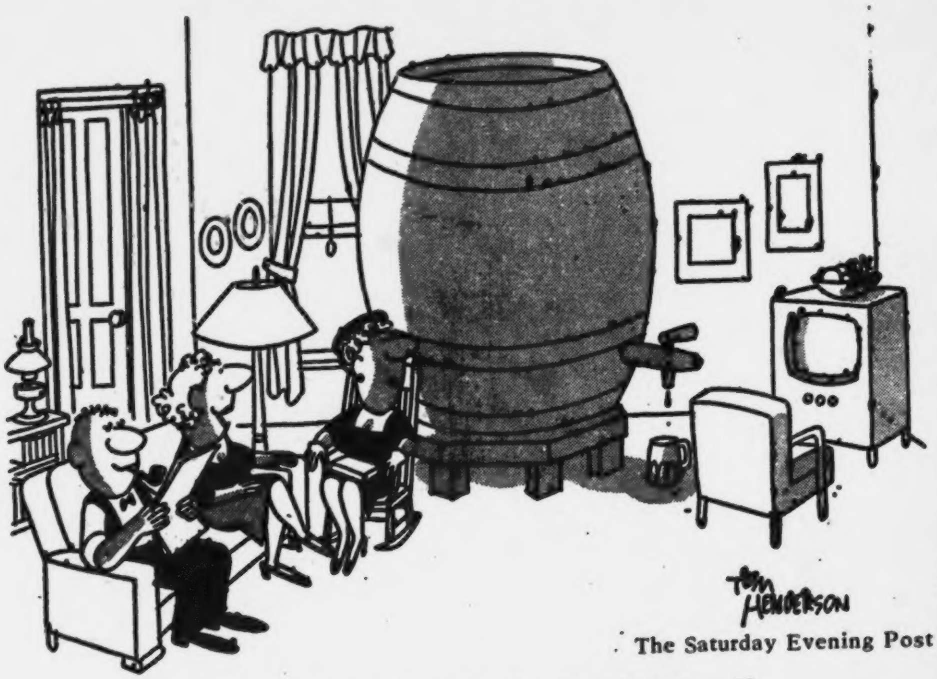
These are but a few samples of the many verbs you may have listed.

The manipulative process may be carried out under three major headings or categories: Magnify, minify and rearrange. Hence, in this course, words like magnify, minify, rearrange, etc. are described as ____________________ verbs.

manipulative, operative, etc.

(13)

In the cartoon below, the gentleman solved his problem by using the manipulative verb, ____________________.



The Saturday Evening Post

"Oh Yes--Jim's all set for the World Series."

magnify, enlarge, etc. (or perhaps you saw it as "rearranging" the facilities, or even as "minifying" the thrist-factor!)

magnify, enlarge, etc. (or perhaps you saw it as "rearranging" the facilities, or even as "minifying" the thrist-factor!)

(14)

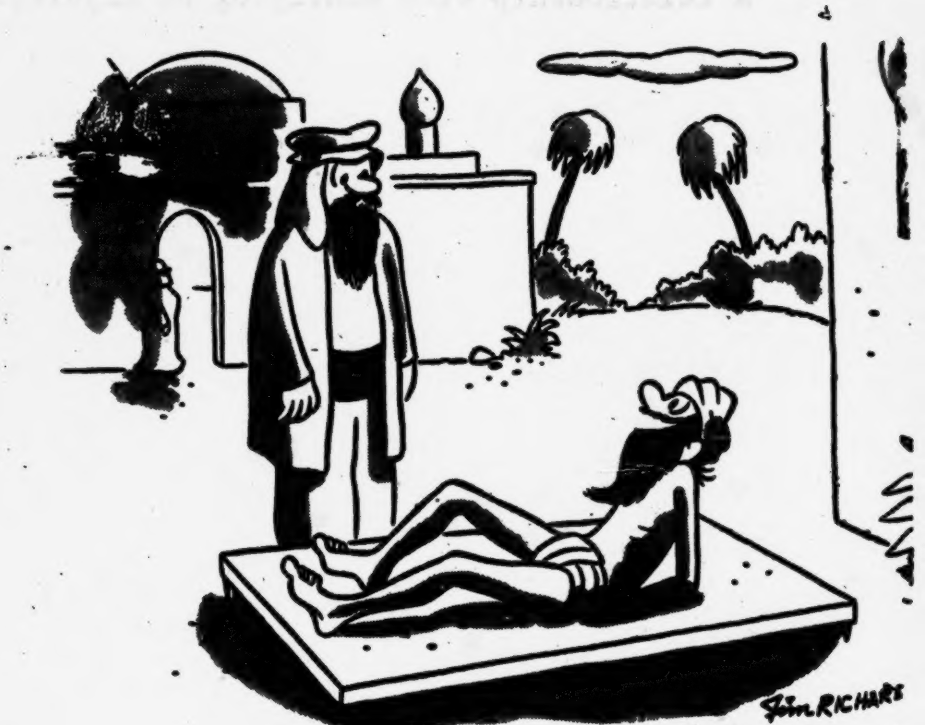
Midget racers, doll houses, and the like have resulted from applying the manipulative category, ______________________.

minify, make smaller, reduce, etc.

(15)

The character in this cartoon succeeded in improving his bed of nails by

____________________________.



The Saturday Evening Post

"I've just made the most wonderful discovery."

rearranging, arranging anew, etc. (or perhaps you saw a different meaning, and a relationship with minifying or magnifying)

(16)

The three major manipulative verbs may be applied not only to the entire object, but also to each feature or part of the observed object we wish to ____________.

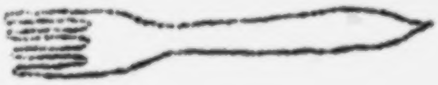
change, improve, manipulate, consider for improvement, etc.

(17)

Car or dress designers continually apply manipulative verbs not only to their entire products but also to each ______________________ of their products.

part, feature, aspect, etc.

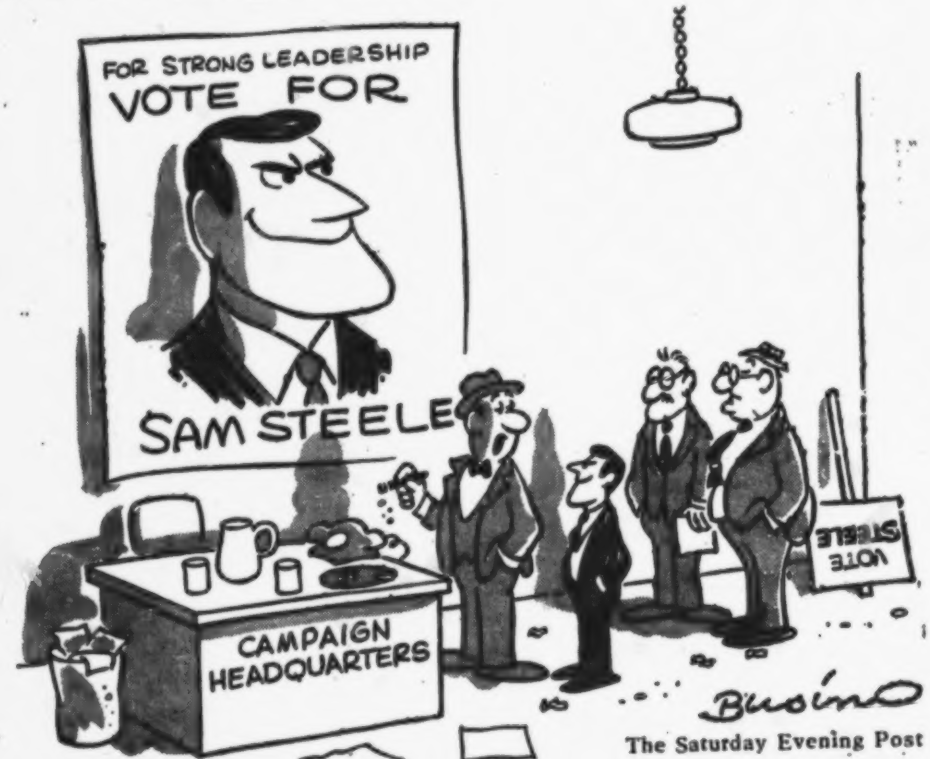
One of the features of a common dinner fork is that it has four metal prongs. Use your imagination to manipulate this basic observation with other information in your mind. Defer judgment while listing below some changes you would like to see made in the dinner fork:



It should be noted that the manipulative verbs can be applied to situations or ideas we want to improve as well as to ____________________ we want to improve.

objects, items, commodities, etc.

The cartoon below illustrates how magnification was applied to a phase of the ________________________, rather than to the object itself.


FOR STRONG LEADERSHIP
VOTE FOR
SAM STEELE
CAMPAIGN HEADQUARTERS
VOTE STEELE
Buoino

The Saturday Evening Post

"Just don't make any personal appearances until after the election."

situation, circumstances, problem, campaign, pictured situation, object involved, etc.

In later sessions, "magnify," "minify" and "rearrange" will be covered in detail. These are the three main ______________________ verbs which we apply to our observations about an object or situation.

manipulative, operative, etc.

(22)

The more manipulative verbs we apply to an object or situation while trying to find improvements or new uses, the more possibilities we have for generating creative ______________________.

ideas, solutions, thoughts, etc.

In subsequent sessions we will use the single word "improve" to cover all implications of both of the previously-used expressions, "improve" and "find ________ uses for."

new, more, better, different, etc.

(24)

To improve an object or situation, then, is to change it and/or its use so that it either serves its intended purpose better or serves a new _______________.

Spend a good block of time (10 or 15 minutes if possible) on the exercises on this and the next three pages.

Choose a particular object you would like to improve, either for its present purposes or for new uses. (For example, a kitchen utensil, an item of apparel, a workshop tool, an automobile part, etc.) Say to yourself, "Oh how I wish it were..." Then list or sketch the ideas that would make your wish come true! Defer judgment while listing or sketching ways to magnify, minify, rearrange, etc. the object or its parts. Use the next two pages for additional ideas.

Name object here: ______________________

You may continue with ideas or sketches for the object you chose on page 25, or you may prefer to consider a new item that interests you. Defer judgment! If you choose a new object, name it here: ______________________

Continue with your ideas and sketches for the object you were working on, or name a new object, and see how you might change and improve it by magnifying, minifying, and rearranging the object or its parts. Defer judgment! Make it come closer to your wishes!

Explain or sketch the idea you like best of those you created on the previous pages.

Your result may have been a familiar object, designed to be used in a new way, or it may have been an unfamiliar object, designed to be used for a given purpose. (Or, it may be an unfamiliar object, designed to serve an unfamiliar purpose!)

(29)

The idea for the highly successful product, "Play-Doh" (a type of modeling clay) serves as a good summary illustration. This product emerged as a manufacturer of wallpaper-cleaner observed his youngster playing with a can of the cleaner. The manufacturer "manipulated" what he observed. He reshaped, added color, repackaged, and thus derived his new use for this product, thereby sending sales soaring. He thus changed his product to allow it to serve a new ______________.

use, purpose, etc.

"First a new theory is attacked as absurd; then it is admitted to be true, but obvious and insignificant; finally it is seen to be so important that its adversaries claim that they themselves discovered it."

William James
Psychologist

In later sessions we will study many additional manipulative verbs such as adding, reshaping, etc.

Spend as much time as you still have available in the following way. Choose anything in your life that you would like to improve. Apply the manipulative verbs to your observations about the situation or object and see how many new ideas you can create. List your observations and your ideas as indicated, on this and the following pages.

Object or Situation: ______________________________

Observations	Ideas (Defer Judgment) MAGNIFY, MINIFY, REARRANGE

Object or Situation (You may continue with the same one as on page 31; or you may choose something different for each page): ____________________

____

Observations	Ideas (Defer Judgment) MAGNIFY, MINIFY, REARRANGE

Object or Situation: ______________________________

Observations

Ideas (Defer Judgment)
MAGNIFY, MINIFY, REARRANGE

Now choose the idea you liked best from any of the previous three pages. Write it below, as indicated, and then tell how you might put the idea to use.

IDEA: ____

How I might use it:

QUESTIONNAIRE

1. What are your general comments about this session?

2. How would you compare this particular session with earlier ones? Check one:

The best! ____

Among the better ones ____

Average ____

Among the poorer ones ____

The worst! ____

3. Do you have any particular reactions to the use of the cartoons? If so, what?

(a) especially liked ____________________
(b) especially disliked ____________________
(c) saw no particular point in ____________________

R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

ED015677

Session #15 -- Idea-Finding: Making Strange Ideas Useful

Wonder, wonder
Wonder with me!
Wonderment is
Fancy free!
And what we wonder
Is apt to be
Tomorrow's
Actuality.

Bert J. Decker

NAME ______________________________

SCHOOL ______________________________

DATE ____________________

---

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(1)

In the previous session, we manipulated our observations concerning objects or situations by applying the following three major verbs:

1. ______________________
2. ______________________
3. ______________________

magnify, enlarge, etc.

minify, diminish, etc.

rearrange, arrange anew, etc.

(2)

We apply manipulative verbs to objects or situations in order to discover all possible ways of improving their usefulness. However, in so doing, we sometimes arrive at seemingly ridiculous or impossible ____________________.

ideas, thoughts, solutions, etc.

(3)

For example, it might seem strange to minify a drinking cup; but that is because we continue to apply the same old name and the same old function to what could be a brand-new ______________________.

object, product, article, idea, etc.

(4)

Actually, when we manipulate our observations we often create something brand new. This newly conceived object or situation now has its own ____________.

functions, uses, purposes, identity, integrity, etc.

If we minify the drinking cup, what different objects might be created? List your ideas below:

eye cup

egg holder

etc.

(6)

When we apply manipulative verbs to generate ideas, we must realize that there may be potential ____________________ in each idea generated.

value, usefulness, etc. (as well as possible problems, of course)

(7)

It therefore becomes especially important, during this idea-production phase, to ________________ judgment.

defer, withhold, etc.

(8)

The strange, seemingly silly or impossible idea may ultimately become a

____________________ idea.

valuable, useful, worthwhile, good, etc.

(9)

Consider the earlier story of the manufacturing plant, where the workers were slowing up production by reading the newspapers used to package the product. The suggestion to blindfold the workers at first appeared to be a ____________ suggestion.

silly, ridiculous, strange, stupid, etc.

(10)

This strange suggestion, however, evolved into another idea: Hire blind persons to do the wrapping. This was ultimately judged as being a ____________ idea.

workable, good, useful, etc.

Often a valuable idea results from changing a strange one to make it useful. There are even many seemingly silly or useless ideas that, even in their original form, are eventually recognized as valuable ideas.

Remember the quotation by Alfred North Whitehead, the philosopher:

> "Almost all really new ideas have a certain aspect of foolishness when they are first produced."

(12)

We must remind ourselves that many great ideas were at first greeted with sneers.

The steamboat was at first ridiculed as "Fulton's ____________________________."

folly, foolishness, etc.

(13)

At the 1939 New York World's Fair, the models of today's super-highways seemed

______________________________.

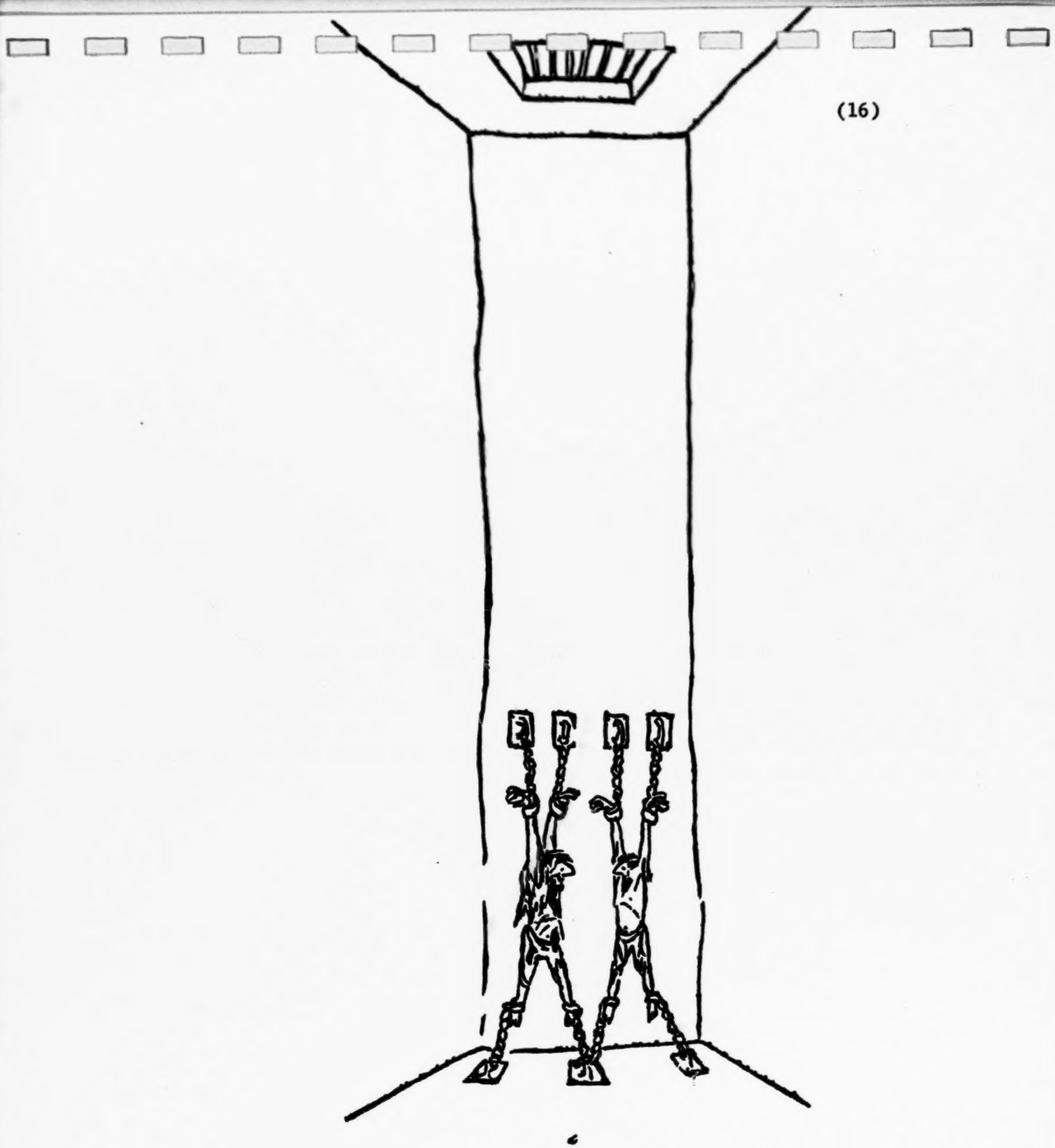
far-fetched, unbelievable, absurd, impossible, not feasible, etc.

(14)

One of the basic factors in invention and creative problem-solving is optimism -- the attitude that anything can be done and that nothing is ____________________.

impossible, not feasible, worthless, unable to be improved, etc.

The man in the cartoon on the next page undoubtedly has more than his share of optimism.



"Now Here's my Plan..."

by Shel Silverstein
in LOOK Magazine

(17)

With a truly positive outlook, one may surmount many ______________ to the creative urge.

obstacles, blocks, barriers, problems that are hindrances, ideas that are antagonistic, etc.

During a visit to Dublin in 1963, President Kennedy spoke the following words:

> George Bernard Shaw, speaking as an Irishman, summed up an approach to life: "Other peoples," he said, "see things and say, 'Why?' ... But I dream things that never were - and I say: 'Why not?'"
>
> It is that quality of the Irish, the remarkable combination of hope, confidence, and imagination, that is needed more than ever today. The problems of the world cannot possibly be solved by skeptics or cynics whose horizons are limited by the obvious realities. We need men who can dream of things that never were, and ask why not.

(19)

Let us try a short creative exercise. You are responsible for entertaining a young child who is alone with you in a classroom which is not being used at the moment. There are no toys or children's books available.

List some of the things you might do to amuse the child.

let him write on the blackboard

tell stories

sing

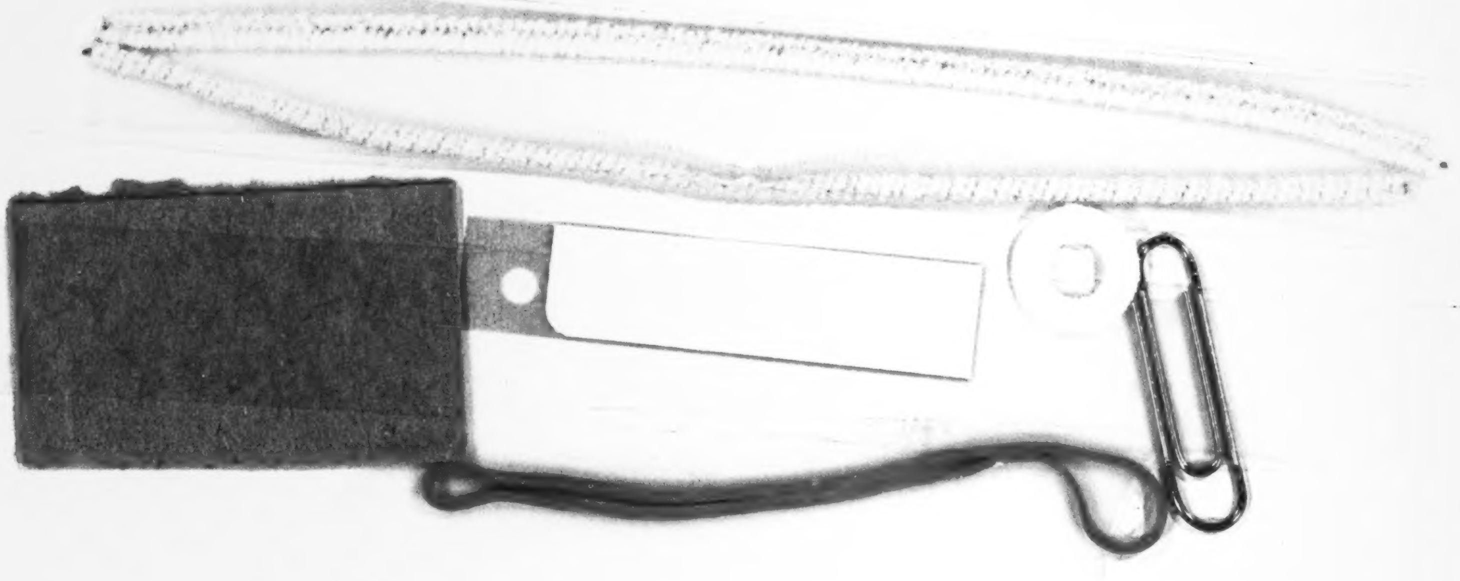
ask him questions

make faces at him

etc.

(20)

Suppose you have now exhausted all the possibilities you have thought of, and the child still needs to be entertained. As a last resort, you search the room and succeed in gathering together the items in the enclosed envelope. Remove the items from the envelope and, in no more than 10 minutes, manipulate the items and assemble all or any part of them into something which might entertain the young child. Tell below what you made from the items. (You may be able to list more than one entertainment device that you created.)



(21)

When you first opened the envelope, you may have felt that this assignment was ____________________________.

Some may have thought it ridiculous or silly, or hard, or even impossible. Others may have thought it fun or challenging. One student devised a "basketball" game, using one pipe-cleaner as the upright framework, another pipe-cleaner for the hoop, and a paper ball for the basketball. He attached the pipe-cleaners to the cardboard-backdrop, using the gummed-label for fastening.

(22)

By applying the technique of manipulation to a seemingly silly situation, you may have been able to generate an idea of some ______________________________.

merit, value, good, worth, use, etc.

List some odd or unusual ideas on how to improve a glove. Use your creativity in thinking up strange and "impossible" ideas. Use deferred judgment.

Make it of such heavy material that it is hard to lift hand, thus keeping person from using hands when talking.

Cut off fingers for summer.

Put thorns inside to discourage theft of glove.

Build-in a pencil.

Make it completely reversible (palm to back, inside and out, right and left).

Try to use your imagination even more freely than you did on the glove exercise. Think up as many strange and "impossible" ideas as you can -- this time, for changing a scarf. List at least two more ideas than you listed on the previous page. Defer judgment.

If you really did let your imagination roam, you probably thought up stranger ideas than you found in the response to the previous page.

By manipulating one of your strange ideas from page 23 or 24, try to develop it into something potentially valuable. Let your imagination roam. List all ideas, variations, etc., that pop into your head as you consider the strange idea in relation to the challenge of improving a glove or a scarf. Use deferred judgment.

STRANGE IDEA ______________________________

Variations:

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(26)

From the ideas you created on the previous page, select the one you like best and tell how it might be used.

(27)

The preceding exercises have been designed to show how you can take a seemingly useless idea and, through manipulation, generate something ____________________ from it.

useful, valuable, good, different and worthwhile, etc.

"Look sharply after your thoughts. They come unlooked for, like a new bird seen on your trees, and, if you turn to your usual task, disappear."

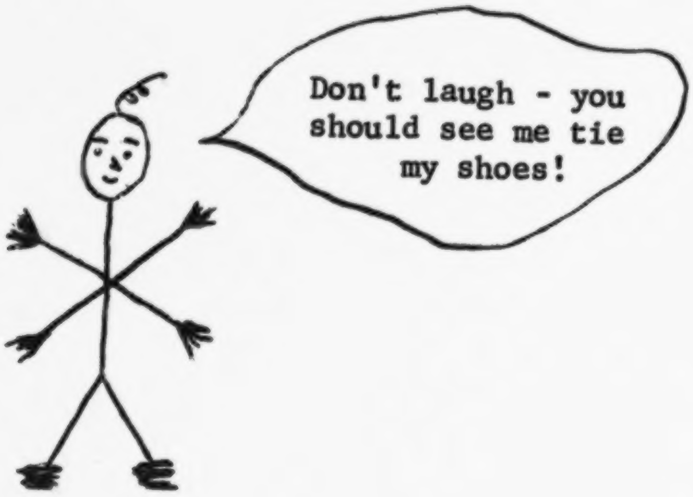
Ralph Waldo Emerson
Poet

In the previous session, we introduced the three major manipulative verbs: magnify, minify and rearrange. In this session we showed how some seemingly strange ideas could be generated and then made useful through application of these verbs. In the next several sessions, we will study each of these three general manipulative categories in detail.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Spend as much time as you have available on this and the remaining pages, in whatever order you wish.

Cartoonists capitalize on the unusual or unexpected result. Try it yourself. We often hear the saying, "It certainly would be convenient to have an extra hand." Draw a simple line drawing to illustrate what this might suggest to you. Caption it!


Don't laugh - you should see me tie my shoes!

(31)

What rearrangements of your fingers, hands, legs, feet, etc., might be advantageous to you under particular circumstances?

(32)

List some advantages of a minified needle.

Useful for microscopic surgery.

Useful for sewing clothes for flea circus.

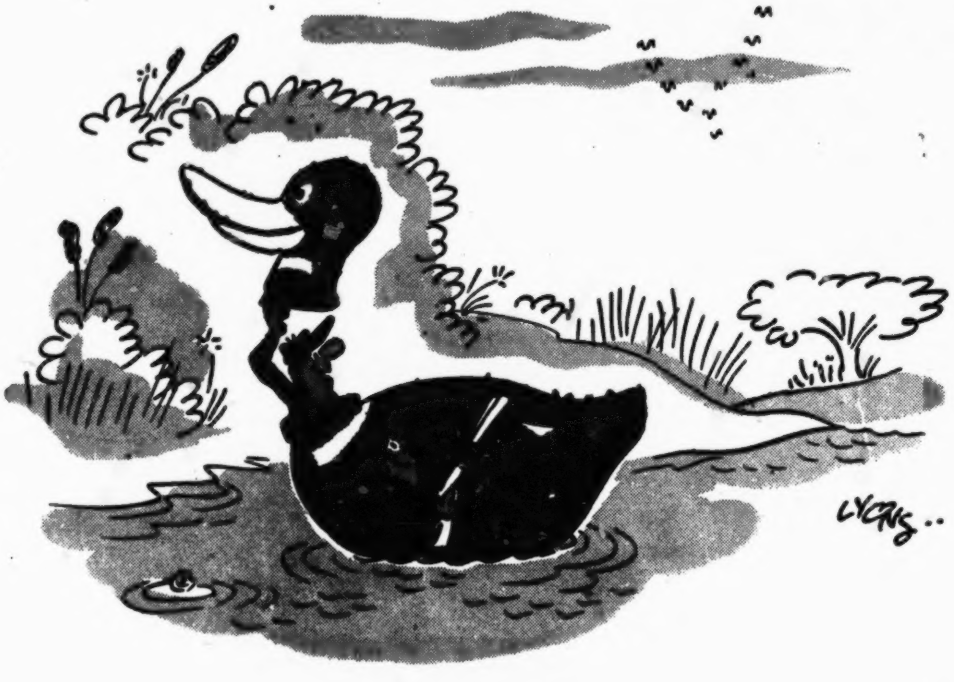
Easier to go through cloth.

Create more detail in patterns.

Less "hurt" in medical injection.

etc.

Suppose we asked you to list ways to improve a decoy for duck-hunting by magnification. This might seem silly, since we think of duck decoys as being a particular size to serve a particular purpose. But look below to see what one cartoonist thought of.

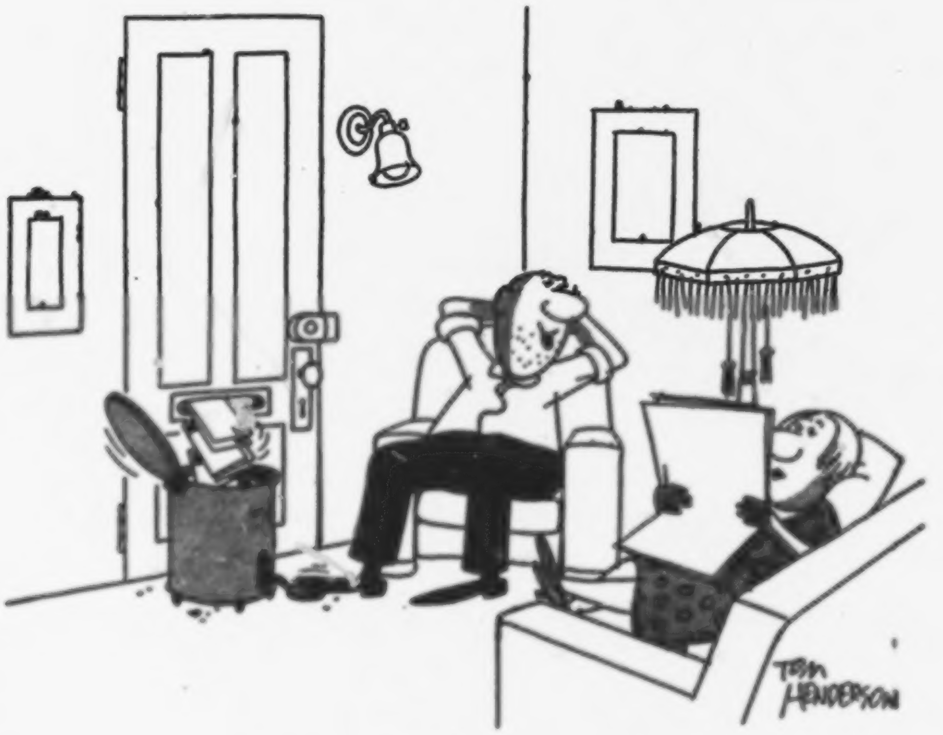


"Here they come."

THE SATURDAY EVENING POST

Although we may not all appreciate the implications of the duck-hunting cartoon, the cartoon on the next page may hit a little closer to home. List below as many suggestions as you can for turning this idea from "silly" to "good":

(35)


TOM HENDERSON

"Well, here it is the first of the month again."

THE SATURDAY EVENING POST

QUESTIONNAIRE

1. What were your general reactions to this session?

2. Do you feel that you succeeded, in the exercises in general, in taking a seemingly silly situation and manipulating the elements in such a way as to produce a potentially good idea?

Check one: yes _____ no _____ maybe _____

3. Which particular "silly-to-good" exercises did you feel were:

of much value, pages #______________________________

of little value, pages #______________________________

4. What was your reaction to the cartoons in this session?

Check one: good _____ bad _____ indifferent _____

ED015677 R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #16 -- Idea-Finding: Manipulation by MAGNIFICATION

"The creation of a thousand forests lies in one acorn."

Ralph Waldo Emerson

NAME ____

SCHOOL ______________________________________

DATE _______________________

---

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(1)

In previous sessions, you found that one way to develop new ideas is to apply the three major manipulative verbs: ______________________, ______________________ and ______________________.

magnify, enlarge, etc.

minify, make smaller, etc.

rearrange, arrange anew, etc.

Write below in your own words what the manipulative verb "magnify" means to you.

WEBSTER'S DICTIONARY DESCRIBES "MAGNIFY" IN TERMS OF MAKING GREATER IN SIZE, STATUS OR IMPORTANCE, ENLARGING, ETC. YOU MAY HAVE DEFINED IT DIFFERENTLY.

Did you think of other words such as making bigger, taller, wider, etc.? Write below some additional verbs that connote magnification:

ADD

INCREASE

COMBINE

ELONGATE

STRENGTHEN

MAKE HEAVIER

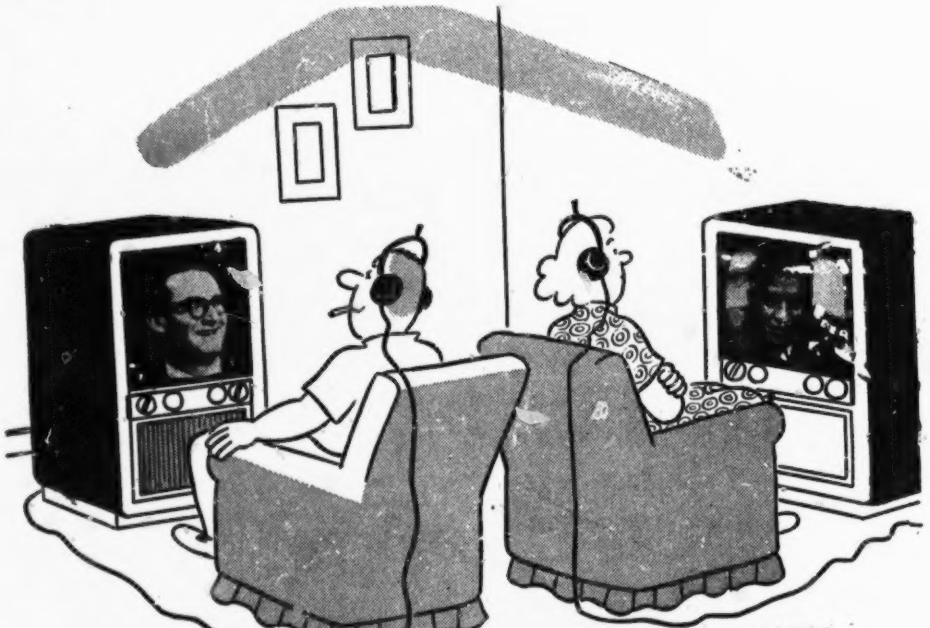
ETC.

In this session, we will use magnification as a technique of manipulating the observed facts about an object or situation in order to ____________________ new ideas for improvement.

generate, create, produce, etc.

(5)

In solving their problem, the couple below manipulated by the ________________ method of magnifying.

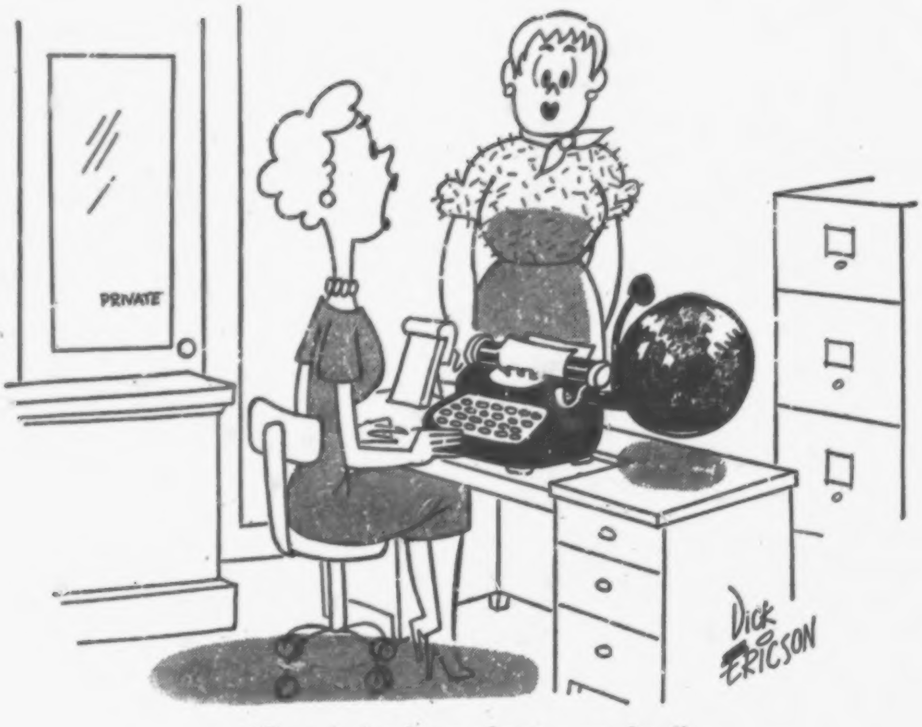


ROY WILSON
THE SATURDAY EVENING POST

doubling, duplication, adding, etc.

(6)

In this cartoon, the boss solved his margin problem by means of the ______________ method of magnifying.


PRIVATE
DICK ERICSON

"Boy, is he fussy about margins."

THE SATURDAY EVENING POST

enlargement, exaggerating, making-bigger, making-louder, etc.

(7)

To duplicate and to enlarge, as shown in these cartoons, are two methods of using the ____________________ verb, "magnify."

manipulative, operative, etc.

(8)

Some other aspects of magnification are "adding" or "increasing." If we think of adding to or increasing the intensity of the color of a pencil, we might develop the idea of an extremely brilliant paint that makes the pencil ____________ in the dark.

glow, visible, stand out, luminous, etc.

We thus conceive of a luminous pencil. Suppose we also consider making the "lead" itself luminous. To what kinds of people might a luminous pencil, or a pencil with luminous lead, be valuable? (List below) people who work in dark places

people who like to write in bed at night

policemen

etc.

(10)

This is one demonstration of how increasing or adding to a particular feature of an object can help generate new ______________ for improvements or other uses.

ideas, suggestions, etc.

(11)

Magnification can also mean adding to or increasing the intensity or size of the ______________________ object, rather than of only one feature of the object.

entire, whole, original, etc.

16

Suppose we made a common paper-clip very large and heavy. What uses might there be for such a "paper-clip?" List them below:

paper weight

clip for thick manuscripts

etc.

As we have illustrated, the technique of magnification can be applied to one portion of an object and not another. It can also be applied to one dimension and not another. Suppose, for example, we greatly increase the length of a knife, but not its width. What might be some uses for a long, thin knife? List them below:

Slide under a locked door to retrieve a paper lying on the floor.
Stick into pickles or olives to get them out of a deep jar.
Sword for dueling.

etc.

In the examples given, intensity, weight, length, additional parts, etc., were added to the object or to some of its components. We have thus used the technique of ____________________ in several ways.

magnification, magnifying, etc.

(15)

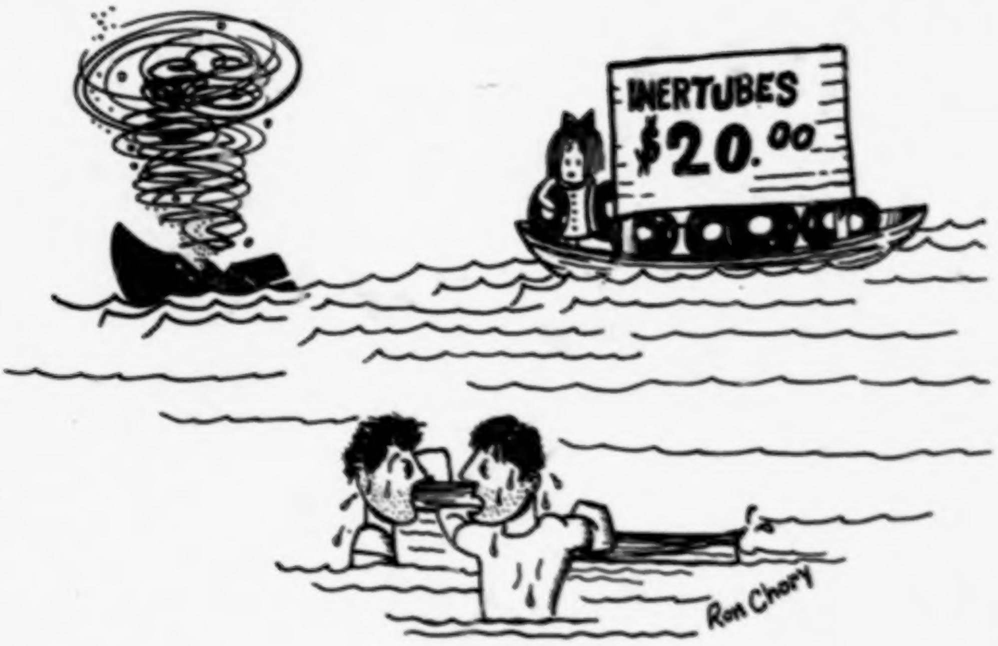
When fishermen "blow up" the facts in telling a story, they magnify by

________________________.

exaggerating, "stretching the point," etc.

(16)

Exaggeration is another form of the technique of ______________________.


INERTUBES
$20.00
Ron Chory

magnification, making bigger, etc.

Multiplying is another magnification technique. The "multiplication" of pearls or beads, for example, resulted in products such as the ____________________.

necklace, bracelet, etc.

Consider the eraser on the pencil we examined earlier. Suppose we multiply the number of erasers and have two instead of one on each pencil. A secretary in an office could then use one to erase pencil marks, and the other, a more abrasive one, to erase ____________________ marks.

ink, pen, typewriter, etc.

"An idea grows by annexing its neighbors."

Ernest Dimnet
Writer

(20)

Magnification of existing objects or ideas has, over the centuries, resulted in many new ______________________.

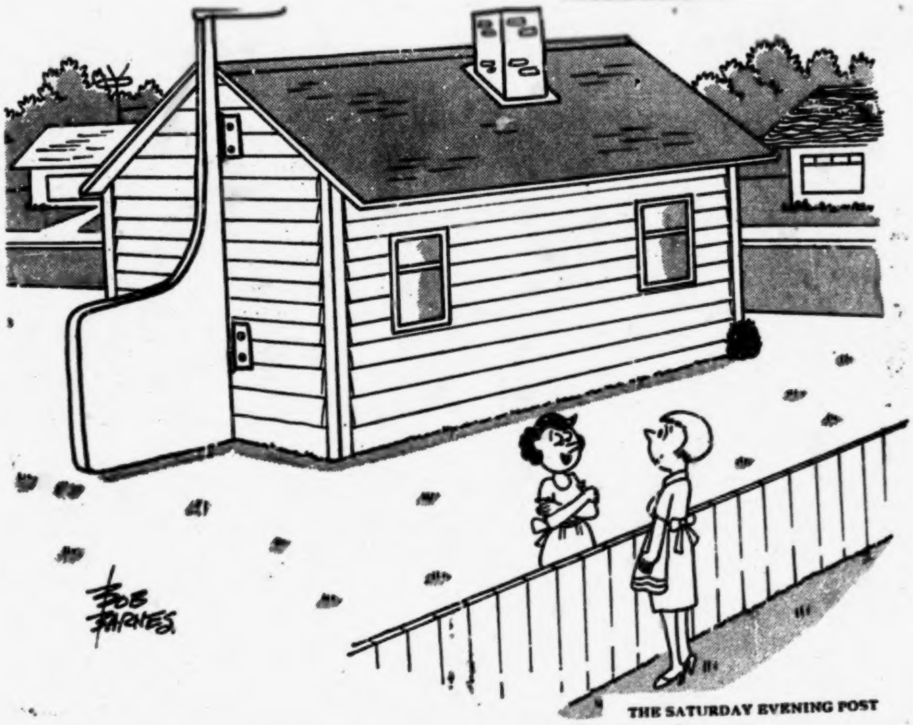
inventions, ideas, products, objects, etc.

(21)

Tires were fattened to make balloon tires; motors were added to horseless carriages to make ______________________.

automobiles, cars, speedier vehicles, etc.

This cartoonist had an idea for another addition to a familiar object.


BOB BARNES
THE SATURDAY EVENING POST

"Waldo has never forgotten the flood of '35."

Try now to create some new or improved products of your own by applying magnification to products which are already in existence.

Existing product	How you would magnify	New or improved product

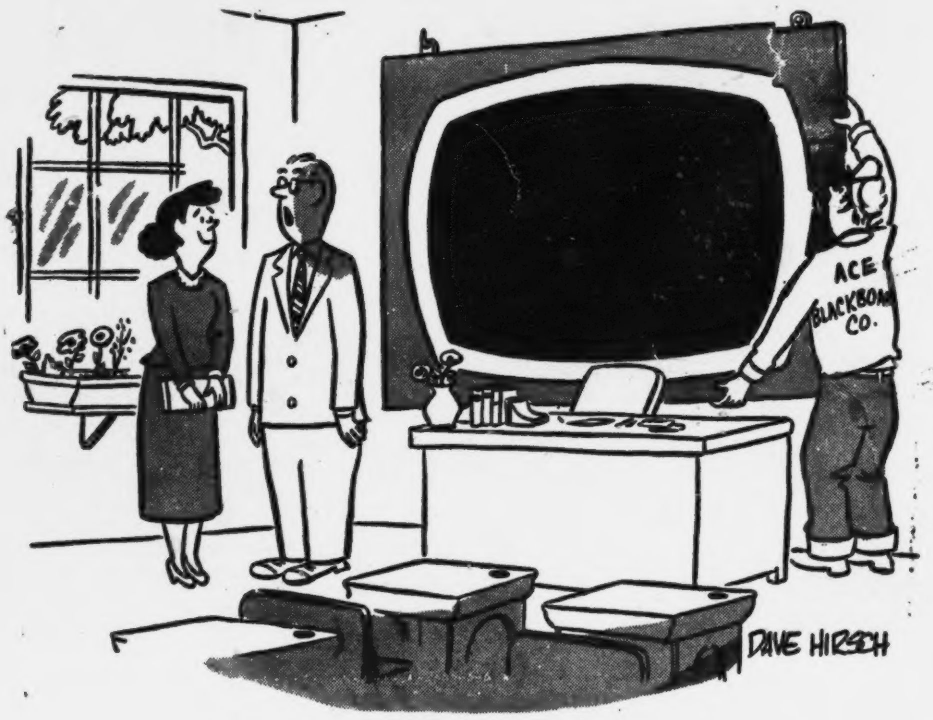
(Use page 24 if you need additional space.)

Utilizing the principle of deferred judgment and applying the technique of magnification, list below a large variety of ideas for changing the blackboard in your classroom. Don't worry whether your ideas are practical or not. Let your imagination roam freely. Jot down all ideas that occur to you for changing the blackboard by magnification. Strive for quantity while deferring judgment.

How many ideas will you create? Set yourself a quota here: __________
Now beat your quota!

(Use page 26 for your additional ideas.)

You undoubtedly thought of many changes; but here's one more you will probably enjoy!


ACE
BLACKBOA
CO.
DAVE HIRSCH

"That should solve your problem of holding their attention, Miss Hobbs."

THE SATURDAY EVENING POST

Select the idea you like best from the previous exercise. Tell how you might use it or get someone else to use it.

Chosen idea: ____________________

What I might do to get it into use:

AT THE BEGINNING OF THIS UNIT, YOU MAY HAVE CONSIDERED MAGNIFICATION IN TERMS OF SIMPLY MAKING AN OBJECT ________________________.

BIGGER, LARGER, ETC.

However, we have seen that magnification extends beyond the limits of simply making an object bigger. It is a technique of manipulating observations in a variety of "more-so" or "plus" ways in order to ________________ many different kinds of new ideas.

generate, create, produce, discover, derive, etc.

We have used a variety of exercises to illustrate the many ways of magnifying. These exercises also serve the purpose of stretching our imaginative muscles. This is a prime reason for the abundance of exercises given throughout this course.

> "By practicing mental arithmetic 20 minutes a day for 20 days, adults can more than double their ability to calculate. By the same token, creative exercise can regain for us much of the imaginative power we have lost throughout neglect."
>
> Albert Edward Wiggam
> Author

Try to list other "magnification" verbs or expressions below. Don't worry about repeating ones already given. Just try to list as many as you can.

ADD

ENLARGE

INCREASE

COMBINE

AUGMENT

EXTEND

SWELL

ELONGATE

STRENGTHEN

MAKE HEAVIER

MULTIPLY

EXAGGERATE

FATTEN

SQUARE

CUBE

DOUBLE

TRIPLE

QUADRUPLE

BROADEN

MAKE HUGE

LENGTHEN

BLOAT

BULGE

WIDEN

BLOW-UP

MAKE GREATER

EXPAND

INFLATE

GROW

MAKE TALLER

ETC.

In this session, you have applied the technique of manipulation by MAGNIFICATION to generate ideas. In the next session, you will use minification. Let us emphasize again the importance of deferring judgment whenever you are generating ideas.

Just a couple of reminders:

Are you using your idea-book?

Are you using the technique of incubation to advantage by temporarily leaving a certain problem which "bugs" you, and then going back to it again?

Spend as much time as you still have available in either or both of the following ways:

I. (a) Choose any object you are interested in. (For example, an article of your clothing, your handkerchief, your textbook, etc.)

  (b) On the following page, indicate the chosen object; then list your observations and manipulate them as called for.

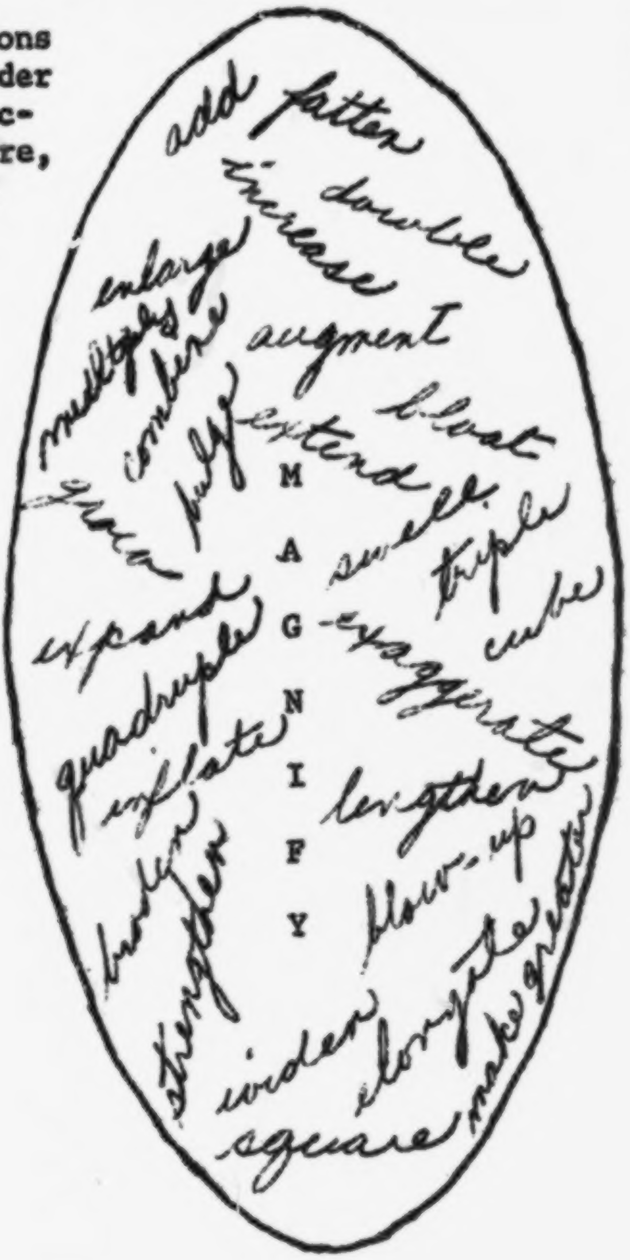
  (c) At the bottom of that same page, write (or sketch) the idea or combination of ideas you like best for a new or improved product.

II. On all previous pages which called for a variety of ideas in this session, try to add at least 25% more ideas than you already listed on your first attempt. Use the reverse side of the page where needed.

Object: ____________________

List below your observations about the object. (Consider function, substance, structure, color, shape, texture, sound, taste, odor, time, space, magnitude, etc.)

List below ideas that are suggested when you magnify details that you observed. (DEFER JUDGMNET!!)


add
fatten
double
increase
enlarge
multiply
combine
augment
bloat
extend
bulge
grow
M
A
G
N
I
F
Y
swell
triple
expand
cube
quadruple
exaggerate
inflate
lengthen
broaden
strengthen
blow-up
widen
elongate
make greater
square

Based on your ideas above, explain or sketch below your favorite idea for a new or improved product:

QUESTIONNAIRE

1. My general reaction to this session is:

2. Please note below any specific suggestions you have for improving the session.

ED015677 R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #17 -- Idea-Finding: Manipulation by minification

"Ideas are like matter, infinitely divisible. It is not given to us to get down so to speak, to their final atoms, but to their molecular groupings -- the way is never ending and the progress infinitely delightful and profitable..."

Bovee

NAME ______________________________

SCHOOL ____________________________

DATE ____________________

---

*This project is supported by the U. S. Office of Education (Grant No. 7-42-1630-213)

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(1)

List below the three major manipulative verbs.

1. ____________________

2. ____________________

3. ____________________

magnify, enlarge, etc.

minify, diminish, etc.

rearrange, reorder, etc.

(2)

In the previous manipulation session, you generated many ideas for improvement through the technique of ______________________.

magnification, magnifying, etc.

(3)

The opposite method of manipulating the facts you have observed concerning any object or situation, is to use the technique of ______________________________.

minifying, minification, etc.

(4)

Write below in your own words what the manipulative verb "minify" means to you.

Webster's dictionary describes minify as to make small or smaller, to lessen, to diminish or minimize. It is contrasted with the manipulative verb magnify. You may have defined it another way.

(5)

Perhaps you thought of other expressions such as shorten, decrease, subtract, condense, etc. List some additional minification verbs below.

reduce
subtract
miniaturize
eliminate
omit
thin

split
understate
divide
shorten
compress
deflate
etc.

(6)

In this session, we will generate ideas about an object or situation by manipulating, through minification, the facts or details that we ________________________________.

observe, perceive, know, etc.

(7)

For example, a whisk broom might have resulted from someone's asking whether an ordinary broom would be more effective in certain areas if it were __________.

smaller, tiny, shorter, miniature, etc.

(8)

Many home appliances have been miniaturized to provide for easy installation and mobility. Although they are often toy-like, they can be as ____________________ as their normal-sized counterparts.

useful, valuable, effective, efficient, etc.

(9)

The transistor radio, a more adaptable radio than was previously possible, resulted from ____________________ the earlier radio.

minifying, miniaturizing, condensing, etc.

(10)

Our grandparents would have found it difficult to imagine a radio that was

________________ enough to be carried in a child's pocket.

small, tiny, compact, etc.

(11)

In the near future, a wrist T. V. may result from applying the technique of

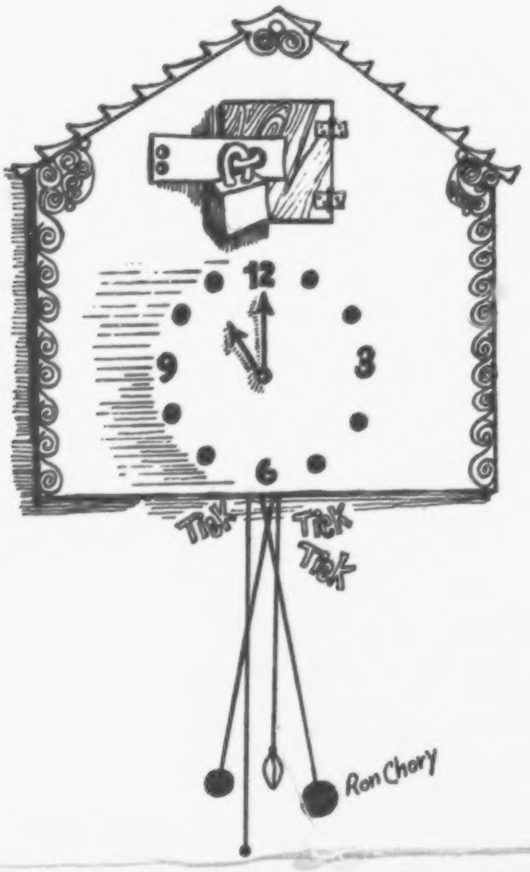
__________________ to the conventional T. V. sets.

minification, minifying, etc.

(12)

In this cartoon, the noise factor rather than the object itself is being

______________________.


12
9
3
6
TICK
TICK
TICK
Ron Chory

reduced, minimized, eliminated, etc.

(13)

The electrification of the clock to lessen or eliminate the noise factor involved in the "tick-tock," demonstrates even further the technique of ________________.

minification, minifying, etc.

(14)

During World War II, the idea of employing midgets in construction projects with cramped quarters exemplified another form of ______________________.

minifying, minification, etc.

(15)

This is an example of how minification can be applied to general situations, conditions, and problems of people, as well as to more tangible ________________.

objects, items, commodities, things, etc.

List below some ways you might improve objects or situations in your home by means of the minification technique.

Shorten drapes into cafe curtains.

Cut down the watching of T. V. by children at dinnertime.

Divide household duties so mother doesn't have entire burden.

etc.

(17)

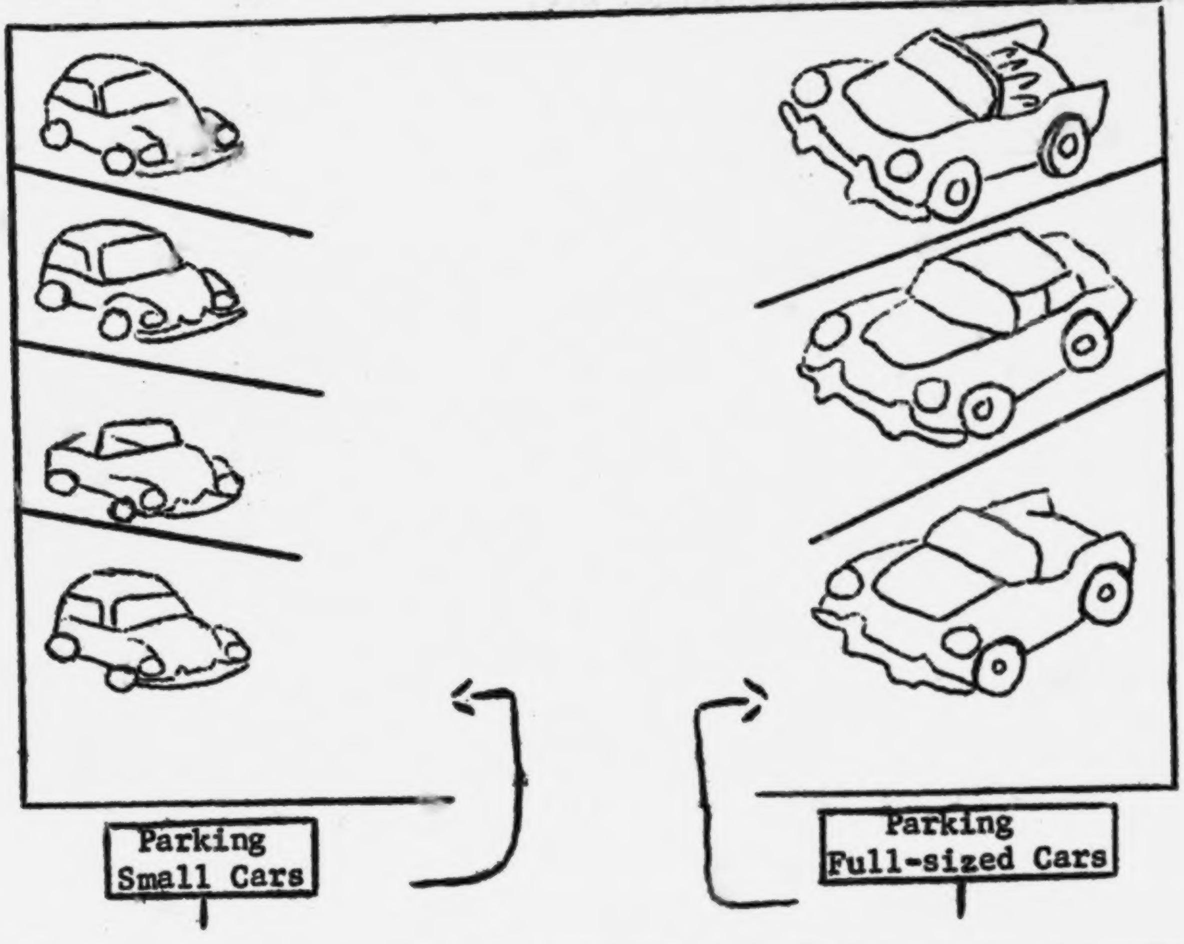
We might also use the technique to improve our automobiles. If we thought of streamlining external door handles, depressing them into the door, or removing them entirely, we would be generating new ____________________ by minification.

ideas, improvements, etc.

List other ways you can think of to improve the automobile or its parts by minification.

(19)

The sketch below shows how someone took advantage of the minification of the entire automobile to help alleviate one very common ________________________.


Parking
Small Cars
Parking
Full-sized Cars

problem, challenge, inconvenience, etc.

We are applying minification by supplying you with this blank page instead of one containing a quote or some other "words of wisdom." Won't you supply us with an original quotation -- your "thought of the week?"

"We live in a world of parts, completion is accepted at the expense of creativity."

Harold J. Barend
Student

(21)

"Slimline" pencils and reducing diets are examples of minifying one dimension (width) without ________________ other dimensions such as length or height.

changing, minifying, reducing, etc.

If we minify the space required by a facial tissue, we correspondingly magnify the number of such tissues we can pack into the same box.

One facial-tissue manufacturer recently utilized this minification process by

______________________ 50% more tissues into the same-sized package.

compressing, flattening, squeezing, packing, etc.; or your interpretation of the change may have emphasized the corresponding magnification if you inserted words like adding, putting, incorporating, etc.

A creative cartoonist long ago discovered that drawing only three fingers on a hand is adequate for animated cartoons. Most people never miss the other finger! The cartoonist thus used the minification process of __________________________ a finger. If you haven't noticed this, look closely at the next animated cartoon you see.

subtracting, omitting, eliminating, etc.

People sometimes minify a person's "image of himself" by making him feel small with a ______________________ remark.

belittling, slighting, deflating, nasty, cutting, sarcastic, etc.

(25)

A simple example of minification on a college campus might be to bring the students and instructor closer together by ______________________ the size of the lecture rooms.

decreasing, reducing, lessening, etc.

(26)

We might also shorten the time spent traveling between classes by designing buildings closer together. Besides lessening travel time, this also minifies

_______________________.

distance, space, steps, land usage, the campus, effort, etc.

(27)

We might lessen the weight of school books by developing paper stock that is

____________________.

lighter, thinner, etc.

Keeping the technique of minification in mind, list other ways you might improve your school life and the facilities and materials associated with it. Give yourself a quota of at least six ideas more than you listed on page 16. The early "minification" ideas you think of may seem strange or worthless; but remember that they may lead to other interesting or useful ideas later on your list. Therefore, use deferred judgment.

Write below the idea that you like best from the previous exercise. List several ways one might improve and implement the idea.

IDEA: ____

Ways of improving or implementing:

(31)

Minification is even applied to our language. For example, instead of saying "United Nations Educational, Scientific, and Cultural Organization," we

________________________ it to UNESCO.

abbreviate, compress, shorten, condense, reduce, etc.

(32)

"Miniaturize," "streamline," "depress," "shorten," "lessen," "compress," etc. are all examples of the application of the general ________________________ verb, "minify."

manipulative, operative, etc.

Observe carefully the piece of candy which we have given to you. List below ways in which you might improve it by minification. (After listing your ideas, please feel free to eat the candy! Perhaps it will help "minify" fatigue!)

Reduce number of calories in it.

Decrease toughness and hardness.

Divide into several smaller pieces. (For an example of extreme division, open now the envelope marked "after candy-exercise.")

etc.

These examples show how manipulation of observed facts through minification helps us to ________________ new ideas.

create, generate, produce, etc.

(35)

At the beginning of this session, you may have considered minification in terms of simply making an object ________________________.

smaller, tinier, etc.

However, verbs such as "reduce," "condense," "subtract," and "remove," suggest many additional ways to utilize the ________________ technique.

minification, minifying, etc.

See how many "minification" verbs you can now list -- both those already used and new ones that come to your mind. Try for a minimum of 15. (There are 30 in the response on the back.)

Here are 30. You may have thought of still others.

flatten
compress
abbreviate
shorten
decrease
subtract
eliminate
omit
thin
disintegrate
underestimate
lighten
condense
diminish
delete
streamline
deplete
lessen
squash
quarter
halve
deflate
reduce
miniaturize
extinguish
split
understate
divide
belittle
shrink

(38)

Minification, then, extends beyond the limits of simply making smaller. It is a technique offering many "less so" ways of manipulating observed facts in order to generate ______________________.

ideas, improvements, etc.

One final anecdote which we hope will amuse you as much as it did us -- about how a minification idea (automation) of General Motors was used creatively by a quick-thinking Cadillac owner:

The man's car has a "Twilight Sentinel" -- a gadget which automatically switches off the headlights of his car exactly ten seconds after the ignition is turned off. (An automation device for minification of effort; or minification of expense from run-down batteries.)

After he parked on a downtown street and began walking away from his car, a woman called to him: "Mister, you left your lights on."

Our gentleman, counting off the seconds, timed it perfectly. He turned around and pursed his lips, and with much gesture, "blew" his headlights out! You can imagine the look on the face of the woman!

Spend as much time as you still have available on this and/or the following exercise.

Indicate below or in your idea notebook, one goal you would like to attain by the end of the semester. (For example: Make the Honor Roll; get a date with a certain classmate, etc.) Then list a minimum of 15 ways to help yourself attain the goal. Apply everything you have learned in this course so far as you list ideas deliberately -- now and whenever else you have time. Also capture in your idea notebook, the thoughts that occur to you during incubation -- when you are not deliberately attempting to list ideas. You may also like to discuss your goal with others and add their ideas to your own.

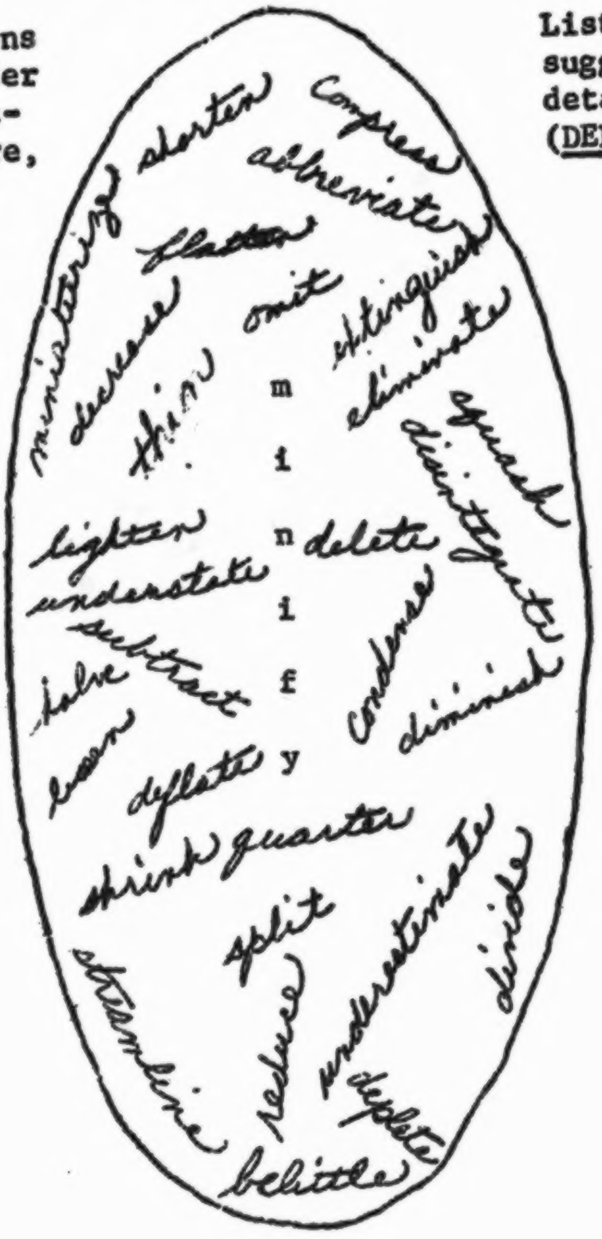
(Use next page for your additional ideas.)

Choose any object you are interested in. (For example, some item from a favorite sport, hobby, or leisure time activity.) Write the object below; then list your observations and manipulate them as indicated. At the bottom of the page, write (or sketch) the idea or combination of ideas you like best for a new or improved product.

Object: ____________________

List below your observations about the object. (Consider function, substance, structure, color, shape, texture, sound, taste, odor, time, space, magnitude, etc.)

List below ideas that are suggested when you minify details that you observed. (DEFER JUDGMENT!!)


m
i
n
i
f
y
miniaturize
shorten
compress
abbreviate
flatten
decrease
omit
extinguish
eliminate
thin
squash
disintegrate
lighten
delete
understate
subtract
halve
condense
diminish
lessen
deflate
shrink
quarter
split
underestimate
divide
streamline
reduce
deplete
belittle

Based on your ideas above, explain or sketch below your favorite idea for a new or improved product.

QUESTIONNAIRE

1. What is your general reaction to this session?

2. Did you create any ideas that were especially pleasing or satisfying to you in any of the exercises?

3. Compared to other sessions, how would you rate this one?

Check one: The best! ___ Among the better ones ___ Average ___

Among the poorer ones ___ The worst! ___

ED015677

Session #18

NAME ______________________________

(1)

List below the three major manipulative verbs that we have been considering.

1. ______________________________

2. ______________________________

3. ______________________________

magnify, enlarge, etc.

minify, diminish, etc.

rearrange, reorder, etc.

A four-year-old saw "minification" of her daddy's hair (receding hairline) as an advantage. She bragged that her daddy's head had more kissing space! Here, minification provided a corresponding magnification, but perhaps daddy would have been happier if a rearrangement of hair apportionment could have been accomplished.

(3)

Write below in your own words what the manipulative verb "rearrange" means to you.

Webster's dictionary defines rearrange as "to arrange in a new and different way or order." You may have defined it differently.

(4)

Perhaps you thought of expressions such as reorder, make a new arrangement, reassemble, etc. List below some additional verbs or expressions that connote rearrangement.

revise

reshape

twist

turn over or around

turn inside out

reverse

combine

etc.

(5)

An example of rearrangement occurs when an editor changes the sequence of words, sentences or paragraphs to make an article more ________________.

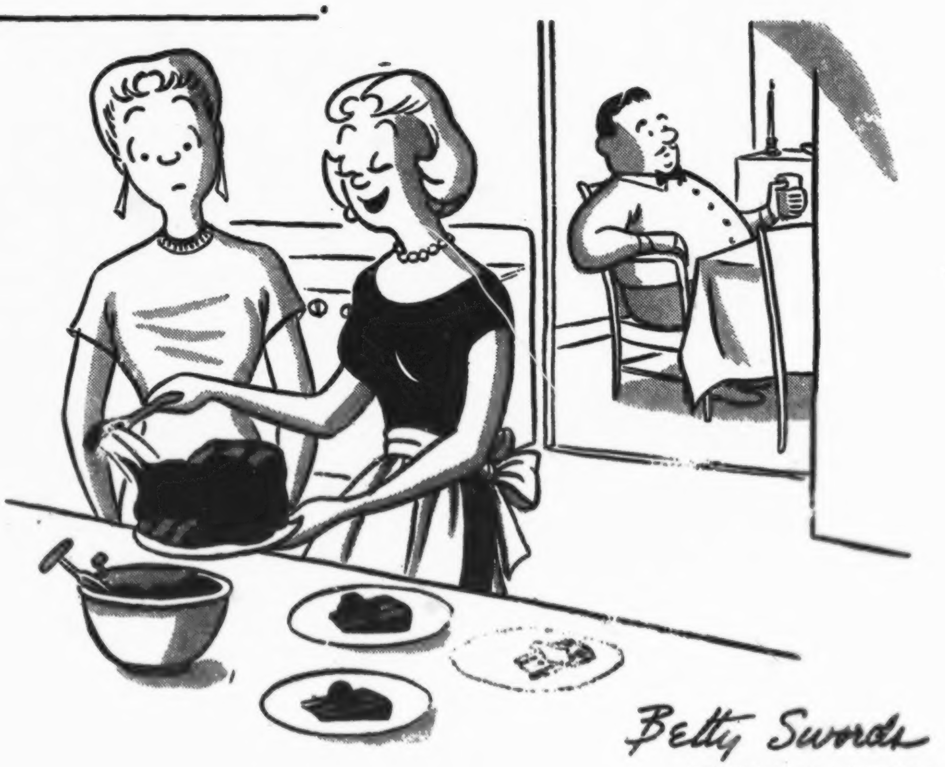
readable, interesting, understandable, etc.

This page is written	in a new block form	called SQUARE SPAN.	Supposedly it is much
easier and faster to	read once you are	used to it.	In Theory the mind
and eye can grasp	each block in one	quick glance without the	jerky left to right
sweeps that conventional	printing requires.		

Experimentation is being carried out with the above unique rearrangement of type, supposedly to enable one to read ________________.

faster, more easily, better, etc.

The reshaping of a person as well as an object, may provide just the means sought for handling a challenging ____________________.

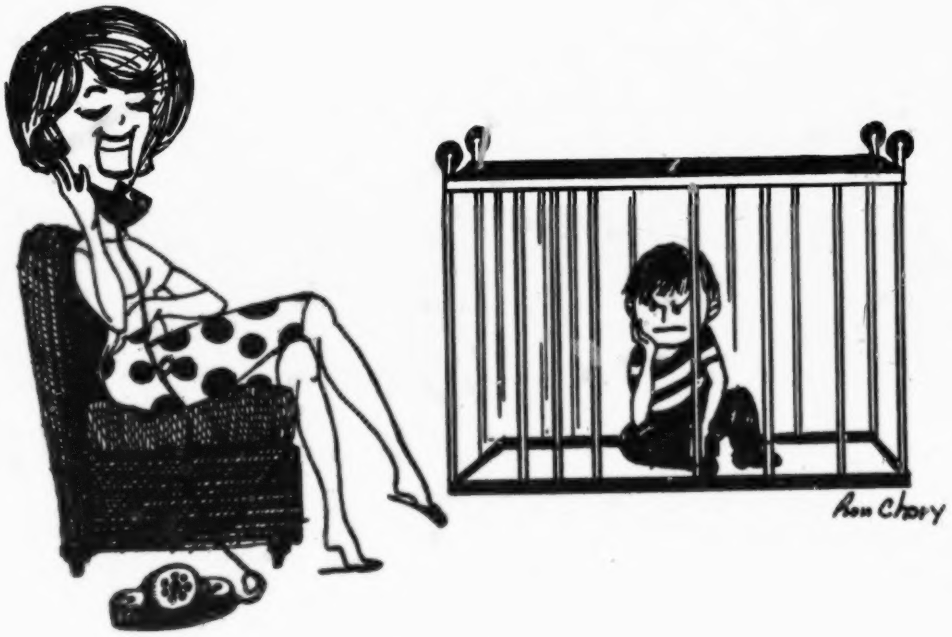

Betty Swords
THE SATURDAY EVENING POST

"George used to be quite a flirt, but somehow he seems to have lost his attraction for women."

situation, problem, etc.

(8)

As shown in this cartoon, the application of the words "turn over" was used as a technique of ______________________.



rearrangement, arranging anew for confinement, etc.

(9)

In earlier years, people tended to "save now, buy later;" in modern times, we tend to "buy now, save (pay) later." Credit buying is thus an example of ________________ the sequence of paying for our purchases.

reversing, changing, rearranging, etc.

(10)

The rear-engine car provides another example of "reversal" as a technique of

____________________.

rearranging, arranging anew, etc.

What items or situations in the classroom or the home might be improved by "reversal" -- by making them reversible, or opposite, or backwards, or upside down, or inside out? Illustrate by explanation or by sketch.

Blackboard: reverse colors -- dark crayon on bright-colored board.

Walls: could be made of attractive wood panelling on one side, blackboard on other side, etc.

etc.

(12)

Explain several other items or products which illustrate, or might be changed to illustrate, the use of the rearrangement technique of reversal or reversibility.

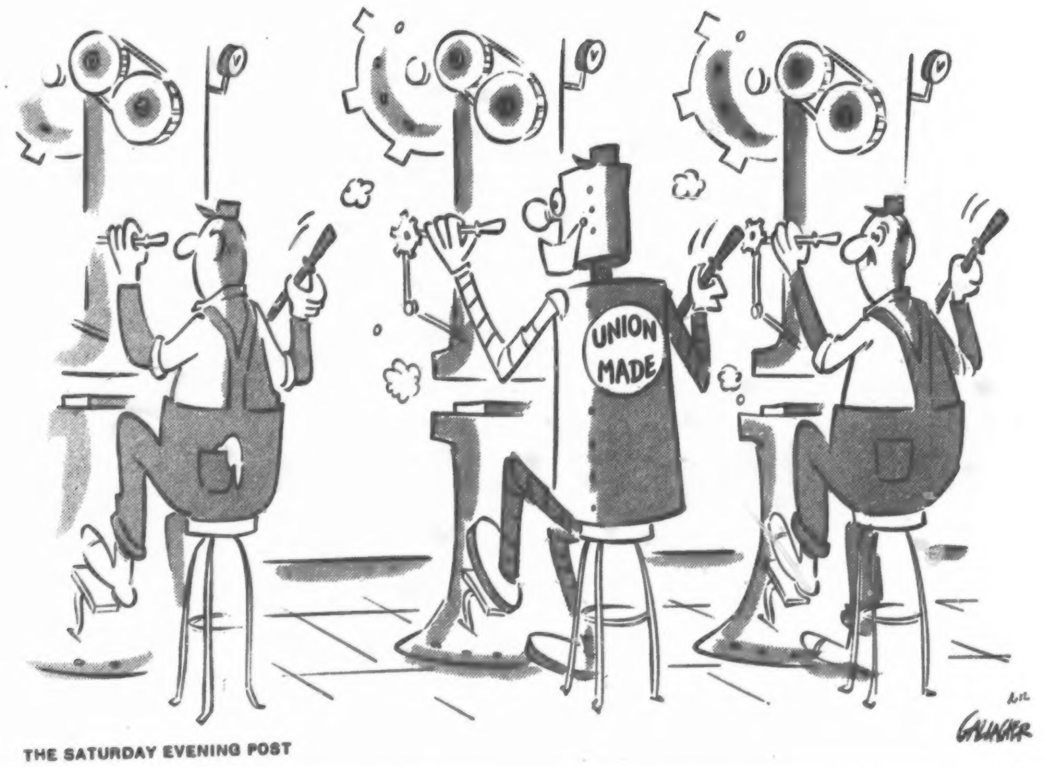
Reversible clothing.

Film which can be exposed on both sides and thus double the number of pictures.

Kick a football backwards (behind you) to develop a new game.

etc.

As in the cartoon below, rearrangement by substitution might help us generate more new ______________________.



THE SATURDAY EVENING POST

ideas, concepts, etc.

(14)

Plastic is used in place of metal in piping; metal or plastic is used instead of glass in bottles. These are further examples of ____________________ one item for another as a way of rearranging.

substituting, using, etc.

(15)

Money long ago replaced goods as a means of exchange; today inexpensive materials are being ________________ for the silver content of money.

substituted, used, exchanged, etc.

List below some ways in which you might change or improve books, magazines or newspapers by substituting other substances for the present ones in the cover, pages, print, etc. (Perhaps the type on this page might be one such possible change!) Some of the ideas you think of may seem strange or worthless; but remember that they may lead to other interesting or useful ideas later on your list. Therefore, defer judgment.

Make covers out of plastic.

Make all textbooks in phonograph record form.

Substitute T. V. instruction.

Make edible: after you "digest" the contents, you digest the book!

etc.

(17)

We can also rearrange by incorporating one object into another to create a

____________________ object.

new, novel, different, etc.

(18)

The clock-radio is a good example of incorporating one object into another as a technique of ____________________.

rearrangement, rearranging by combination, etc.

(19)

"Creativity is the obtaining of a combination of things or attributes that are new to the creator."

E. K. Von Fange
Engineer

(20)

Roller skates were combined with the notion of a surfboard to produce a ________________ sport, called skateboarding.

new, novel, different, etc.

South Sea islanders used beer cans discarded on their beaches as fillings for home-made "bricks." They molded clay around the empty cans, and were thus able to produce more bricks from a given amount of material by the rearrangement technique of ______________________ one item with another.

incorporating, combining, replacing, (substitution), etc.

List below some other products or situations that could be rearranged to advantage by incorporating one into the other. (Illustrate by sketch or explanation.)

Pen and pencil

Pre-buttered bread

Meter in shoes to check mileage

etc.

Try to list other rearrangement verbs or expressions below. Don't worry about repeating. Just try to list as many as you can.

adjust
adapt
reclassify
reset
reorder
make a new arrangement
reassemble
turn inside out
recombine

move apart or together
shuffle
exchange
change sequence
reverse
substitute
incorporate
revise
reshape

twist
turn over or around
mix
invert
upend
separate
join
etc.

Apply several of your own rearrangement verbs from page 23 to some objects or situations, as indicated below.

Your rearrangement verb	Your object or situation	Your new ideas (Defer judgment!)

A San Diego architect named C. J. Paderewski wanted to give all tenants of an apartment building (which he was planning) an equal opportunity for a view of the Pacific Ocean. He designed the building to revolve, eight times a day.

Write below the idea (or combination of ideas) you like best from the previous page. Then explain or sketch how it might be used:

Chosen idea: ____

How it might be used:

(26)

In generating ideas to improve or change an object or situation you can use the three manipulative verbs individually or you can ______________________ them.

combine, mix, join, etc.

(27)

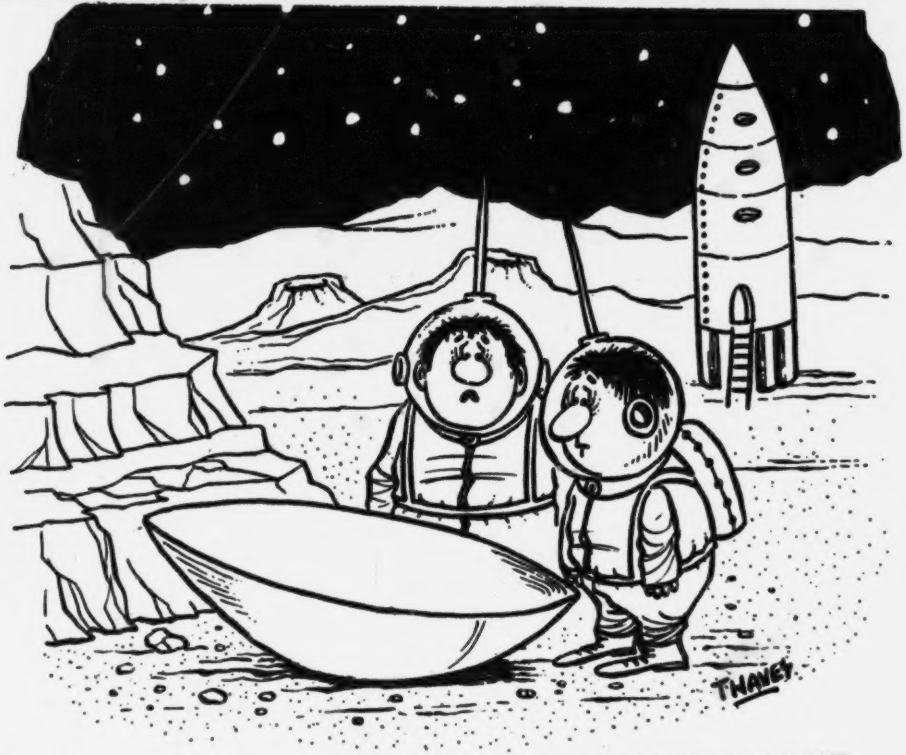
A modern refrigerator-freezer is an example of magnification and rearrangement used to generate a valuable _______________ idea.

new, different, etc.

Eyeglass lenses have been made small enough to be worn directly on the eye, instead of in frames. The resulting product, contact lenses, are an example of ____________________ and rearrangement.

minification, diminishing, etc.

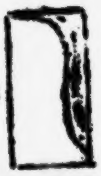
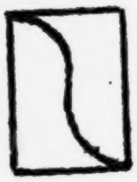
As shown in this cartoon, an interesting idea with respect to lenses might result from a combination of ________________________ and the rearrangement of location.



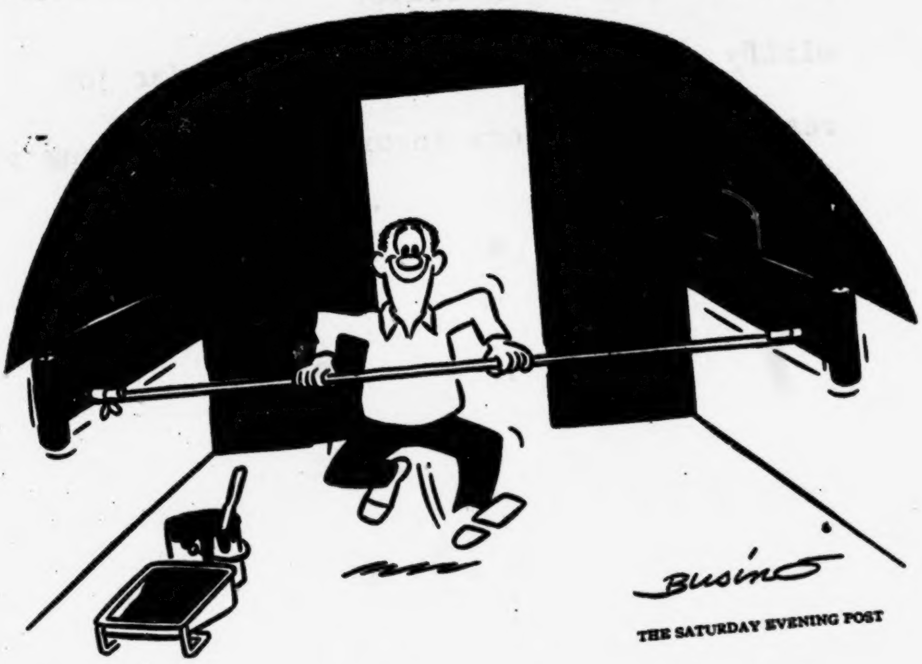
THE SATURDAY EVENING POST

"I just hope it isn't a contact lens."

magnification, enlarging, etc.

Magnification and rearrangement resulted in a substantial dollar-savings to an aircraft company. In obtaining a part for a wing, they used a rectangular piece of aluminum and cut it as indicated:  However, the right-hand corner piece was waste. As a result of creative thinking on the part of an employee, the size of the raw piece was enlarged, and two identical wing-pieces were cut at once, as indicated:  with no waste!

Explain how all three of the major manipulative verbs have been illustrated in the following cartoon.



THE SATURDAY EVENING POST

Below are three possible explanations; you may have had others.

magnify -- double roller

minify -- shorten time required for job

rearrange -- rollers incorporated with long pole

As a real test of your imagination, try to use all of the manipulative verbs at once on the same object or situation. Defer judgment!

Object or situation (You name it.) ________________________________

Magnify it:

Minify it:

Rearrange it:

What do you have NOW?

How might you use it to advantage?

(33)

"Invention, strictly speaking, is little more than a new combination of those images which have been previously gathered and deposited in the memory. Nothing can be made of nothing; he who has laid up no materials can produce no combinations."

Sir J. Reynolds
Painter

This session, and several preceding it, have presented in detail the idea-finding phase of creative problem-solving. Throughout this phase, deferred judgment has been stressed -- the piling up of alternatives with a postponement of evaluation. In the next session, we will pursue further how this multitude of ideas may be evaluated and developed.

Early ideas that we tend to produce regarding any problem are the ideas with which we feel most comfortable, but which are not necessarily the most fruitful ones. The results of creative approaches in problem-solving are an abundant variety of novel alternatives which turn our perplexing situations into opportunities.

As we become more creative -- more fluent, flexible and original -- in producing ideas, we have a greater storehouse from which to make a selection. The selection, therefore, frequently becomes more difficult. On the other hand, the more good alternatives we have to choose from, the greater the likelihood that any one we choose will be eminently acceptable.

While it would be difficult to make an objective decision in choosing one beauty queen from 50 or more candidates, who represented the best of each of our states, none of us could be really unhappy with the ultimate choice for Miss U. S. A. Similarly, the more potentially valuable solutions we have in our list from which to choose, the more likely it is that we will be able to choose a good one.

You undoubtedly noticed that there was nothing printed on the cover of your booklet this time. How about trying your hand at creating the cover for this session? Can you include a quotation or two "for posterity" over your own signature? What might you title the session? Try your hand now at designing the front cover. Use the backs of pages for your rough thoughts; then transfer your best thinking to the front cover. Then, look at the back cover and you will find that we merely "rearranged" the booklet!

Spend as much time as you still have available on any or all of the exercises on this, and the following two pages.

Try the exercise on page 32 again below, with a different object or situation. Defer judgment!

Object or situation (You name it.) ________________________________

Magnify it:

Minify it:

Rearrange it:

What do you have NOW?

How might you use it to advantage?

Choose any object you are interested in. (For example, some item from a favorite sport, hobby, or leisure-time activity.) Write the object below; then list your observations and manipulate them as indicated. At the bottom of the page, write (or sketch) the idea or combination of ideas you like best for a new or improved product.

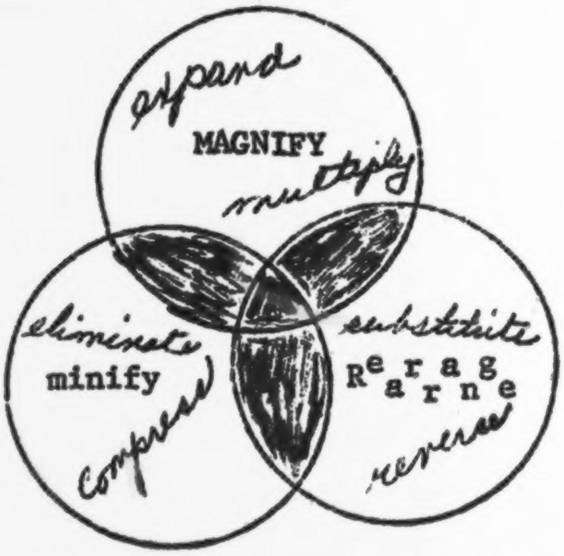
Object: ____________________

List below your observations about the object. (Consider function, substance, structure, color, shape, texture, sound, taste, odor, time, space, magnitude, etc.)

OBSERVATIONS:

Now list below any ideas that are suggested when you magnify, minify and rearrange details that you observed. (DEFER JUDGMENT!!)

IDEAS:


expand
MAGNIFY
multiply
eliminate
minify
compress
substitute
Rearrange
reverse

Based on your ideas above, explain or sketch below your favorite idea for a new or improved product.

Go back to the pages on which you created ideas. See how many additional ones you can now add. Use margins or reverse side for your new ideas. Give yourself a quota of 25% or 50% more ideas than you originally listed.

QUESTIONNAIRE

1. What is your general reaction to this session?

2. Did you create any ideas that were especially pleasing or satisfying to you in any of the exercises?

3. Do you have any specific suggestions for improving the session?

NAME ______________________________ SCHOOL ___________________________ DATE ________

R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #18 -- Idea-Finding: Manipulation by Rearrangement

"We must beware of what I call 'inert ideas' -- ideas that are merely received into the mind without being utilized, or tested, or thrown into fresh new combinations."

Alfred North Whitehead
Philosopher

"Remember, as Einstein pointed out with the law of Conservation of Mass -- energy, everything in the universe remains the same except for its rearrangement."

Dan Evans
Student

---

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R

ED015677

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #19 -- Evaluation and Development of Ideas

"A fair idea put to use is better than a good idea kept on the polishing wheel."

Alex F. Osborn

"Daring ideas are like chessmen moved forward; they may be beaten, but they may start a winning game."

Goethe

NAME ______________________________

SCHOOL ______________________________

DATE ____________________

---

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Our previous few sessions have emphasized the production of more and more idea-possibilities with respect to our challenges. In this session we will consider further the matter of evaluating and developing our most-promising ideas.

A brief analogy may be useful in reviewing the meaning of evaluative criteria. Suppose we were building a work-table, and we were seeking an appropriate piece of lumber for the top. If we had a large pile of pieces from which to choose, we would have certain considerations in mind as we looked through the selection -- for example, length, width, thickness, hardness, freedom from knots, freedom from warp, etc. These would be our "yardsticks" for judging which piece to select. Analogously, we must have certain considerations or "yardsticks" (criteria) in mind if we are to do an effective job of selecting the most appropriate idea from among a whole "pile" of ideas on hand.

In the evaluation of our ideas, some criteria are of more value than others. Thus, it may be advisable to list the criteria in the order of their relative

______________________________.

significance, importance, merit, value, etc.

(2)

Then, in evaluating, we might first apply the most weighty or significant

________________________ to our ideas.

criteria, measures, etc.

(3)

To the ideas that thus rate the best, we might next apply our less ______________ criteria.

weighty, important, significant, etc.

(4)

We may even decide that while meeting some criteria is merely desirable, meeting certain other ______________________________ is not only desirable, but essential.

criteria, yardsticks, measures, etc.

(5)

For example, in the earlier analogy of the piece of lumber, the length might be considered crucial. If a piece of lumber were not of a certain length, we might reject it immediately. Coming back to the evaluation of ideas, the following example is illustrative:

A group of students established the following criteria to evaluate ideas with respect to human-relations problems in their school: (1) Compliance with school regulations (2) Effect on objective (3) Effect on the individual (4) Effect on the group (5) Effect on schoolwork.

The students, of course, could not make regulations, but had to comply with all established policies. Therefore, they decided that meeting the first criterion, "compliance with school regulations," was ____________________________.

essential, necessary, required, imperative, etc.

Any ideas that failed to comply with school regulations had to be discarded -- unless modified so as to comply, or unless the students attacked and solved the problem of "How to get the school officials to change their ________________."

regulations, policies, directives, etc.

(7)

"Is it ethical?" might also be another ______________________ criterion for evaluation.

essential, required, "must," necessary, important, primary, etc.

(8)

An idea unable to meet the ethical standard would likewise be discarded, -- unless we decided to think up ways in which the idea could be ____________ to meet ethical considerations.

changed, modified, altered, etc.

(9)

Avoid criteria such as "Is it possible?" or "Can it be done?" There are many ways of looking at the word "possible." List below a few other criteria one might have in mind when he asks, "Is it possible?"

Is it legal to do this?

Is it in the realm of present materials available?

Is it exorbitant in cost?

Would they allow me to do it?

etc.

(10)

In other words, saying "Is it possible?" is a cover-up for many other more specific

______________________ for evaluation.

criteria, measures, yardsticks, etc.

(11)

Thus you might always ask yourself what you really mean by the expression: "Is it ______________________?"

possible, feasible, etc.

(12)

Asking, "Possible in what respect?" will lead you to more meaningful ____________ for evaluating an idea.

criteria, measures, etc.

Let us now see how we may discover many criteria by examining individually the actual ideas we are planning to evaluate. Then we will provide another practice exercise in making the ultimate evaluation of the ideas.

Below are some ideas for meeting the challenge of "How to enrich your personal life through greater use of creative imagination." Focus your attention on each idea individually. Then ask yourself why you feel that this particular idea might be good and why it might be bad. You may thus find criteria suggested by a particular idea. In turn you may find these criteria useful in judging many other ideas. For example, you might say, "This would not be a good idea because it would cost too much." Thus "cost" would automatically be suggested as a criterion, and might be significant for measuring all of the ideas. As another example, you might say, "I like the idea because my friend would be able to accompany me." Hence, the criterion: "effect on my friends" would be suggested as a consideration in evaluating all ideas.

Read the instructions under "Criteria Suggested by the Idea." Then proceed as explained.

IDEAS

CRITERIA SUGGESTED BY THE IDEA

For each idea try to list a few criteria that are suggested by "why the idea might be good" and a few criteria suggested by "why it might be bad." List below:

1. Keep a suggestion box at home and write a new challenge above it each day.

2. Plan a creativity party with creative activities that would make an exciting evening.

3. Teach Applied Imagination to children in neighborhood, or to relatives.

4. Organize a "creative study group" to apply principles to other courses.

As you focused on each of those ideas, some of the following criteria probably came to your mind:

1. Effect on objective?
2. Individuals and/or groups affected?
3. Costs involved?
4. Tangibles involved (materials, equipment, etc.)?
5. Moral or legal implications?
6. Intangibles involved (opinions, attitudes, feelings, aesthetic values, etc.)?
7. New problems caused?
8. Difficulties of implementation and follow-up?
9. Repercussions of failure?
10. Timeliness?
11. etc.

Try to list additional criteria -- perhaps more specific ones -- suggested by the responses printed on the back of the previous page. Don't worry about how significant these are. If they come to your mind, list them. Defer judgment.

Rate the criteria you listed on pages 13 and 14. Place the letter A, B, or C before each one of the criteria you listed -- A for most significant, B for somewhat significant, and C for relatively insignificant.

Then move on to page 16.

(16)

You may well have found some of the A or B criteria towards the bottom of those you listed on page 13, or among the new ones you added on page 14. Significant criteria often crop up relatively late on the list. This again emphasizes the value of the principle of ______________ ______________.

erred judgment, delayed judgment, postponing judgment, etc.

nder "Criteria," those which you deem the most pertinent criteria
ed on pages 13 and 14. Rate each idea according to these selected
eans of a 1, 2, 3 scale. Assign a 1 for poor, 2 for fair and 3 for
l1 ideas by one criterion first, then by the second criterion, etc.
or this was explained in the earlier evaluation session.) After
leted the ratings, proceed to page 18.

IDEAS	CRITERIA							
on box at home with a new ted above it each day.								
vity party with creative at would make an exciting								
Imagination to children od, or to relatives.								
reative study group" to les to other courses.								

Th

is

ma

for an idea (in this case represented by a 3 for each criterion) d. A particular idea may seem well worth using, even though it n one or two ____________________.

es, standards, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

☐ ☐

Write below
thereof --

s to how you might use the idea -- or any modification
nsider to be the most suitable (from page 17).

A useful techniq
implementation s
decided to use b

criteria as a "checklist" to help you, in the an idea -- especially an idea which you have ed ______________________ on certain criteria.

poor, low, etc

In other words, you

to each ___________

ys to improve your chosen idea with respect

by which you evaluated it.

criterion, measure, etc.

Sometimes an idea you favor

particular criterion you us

(22)

have been completely ruled out by a

____________________.

evaluation, judging, list of criteria, etc.

(23)

In such a case, it may sometimes be fruitful to creatively attack the problem of "How might I overcome the ____________________ of the idea with respect to this particular criterion?"

ncy, shortcomings, weakness, poorness, difficulty, etc.

ke altering a suit that doesn't quite fit, you may be able to tailor the
________ you thought up in order to make it meet the necessary criteria.

tive, suggestion, etc.

Thi

in

ying, "How might I alter an idea which I would like to use,

t fit the important criteria on which it has received a

____ rating?"

poor, ba

Read this
"2" on one
the criter

Then list
to the par
"fair" or
more accep

IDEA: (St

Criteria o

Ways of im

n back to page 17 and select an idea which rated "1" or ia. Record this idea below, as indicated, followed by was rated only 1 or 2.

ng the idea by overcoming its shortcomings in relation a. (Consider each criterion by which the idea was rated yourself, "How might I modify the idea so as to make it ect to this particular criterion?")

s "1" or "2": (State here)

a: (List here)

"The impossibl way!"

the commonplace of tomorrow. There is always a better

anon.

When Farraday inve

replied by asking,

When evaluating, i

even more like a s

fragile little ide

o, someone asked him, "Of what use is it?" He

s a baby?"

member that a new idea is like a baby -- perhaps

ely active mind can ________________________ a

ul and valuable one.

nourish, develop, transf

tc.

Our legal system holds a

well to deem an idea usef

possible circumstances.

nocent until proven guilty. We would do

nd to be ____________________ under all

useless, bad, faulty, wrong, poor, etc.

(30)

An idea which rates poorly, or seems to be "wild" or "silly," may often become a ______________________ idea when creatively modified.

valuable, useful, desirable, etc.

ocedure of developing useful ideas out of ________________ ones might pared to putting bad apples to good use.

illy, wild, strange, useless, etc.

If

"b

gi

(32)

you the job of sorting apples into two piles -- "good" ones and would find many that were nearly perfect and would therefore culty in making your ______________________.

decisio

ction, judgment, etc.

Other ap

tirely rotten and your decision would therefore be equally

_____.

easy, simple, ce

tc.

The ones in betwe

ct and not rotten -- would make classification

difficult, hard, problem

You might decide that there

You might decide on evaluat

eating," "good to sell for

approaches can play a large

(35)

an those two criteria, "good" and "bad."
such as "good for display," "good for
auce, cider, etc." Thus, your creative
ing almost any type of ______________.

decision, evaluation, judgment, criteria for judging, etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

s a matter of fact, even the worst of the apples are only "bad" for what the rocer intended them, -- sale to the public. Creative researchers have found ______________ uses for rotten fruit in the manufacture of fertilizers.

od, effective, profitable, practical, new, other, many, etc.

(37)

e way, a "bad" piece of furniture might be turned into a "good" antique;
re might become a "good" ____________________.

per, retread, etc.

A "ba

appro

e point of view may be transformed into a good idea when

y and looked at from a ________________ point of view.

diff

"It is easie

(39)

a wild idea than to tone up a dull one."

John E. Arnold
Educator

Below are liste
personal life t
Then use each o
ways to change
may help you de
improvements be

S

1. Buy all boo
been publis

2. Read the se
dissertatio

3. Spend the n
tivity inst
country.

4. Live at the

ideas regarding the challenge, "How to enrich your use of the imagination." Circle one of these ideas. (from page 17) as a "checklist;" try to develop the idea with respect to each of the criteria. This ea out of a "wild" one. List your modifications and headings on the right.

WAYS TO DEVELOP INTO
USEABLE IDEAS

y that have

heses and
ct.

ing crea-
the

ome.

The following a

Idea #1 Borro

Idea #2 Seek
your

Idea #3 Write
Ask t

Idea #4 Ask t

useful modifications.

rary) and read one book on creativity each month.

r working on creativity and invite him to address

institutes for their programs and publications.
ir mailing lists.

o help you form a creativity club.

In the sessions complete

problem-solving in detai

to deepen further your u

a challenge of your own.

Practice

ave seen the various steps in creative
session, you will have an opportunity
this entire process, with emphasis upon

rfect, but it surely helps!

Spend as much time as you sti

Write below some perplexing s
at home, or at work.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(42)

lable on this and the following pages.

nagging conflict that you face in school, Write down the first idea that comes into your mind as to what you would like to do to meet the challenge which you stated on the previous page.

below the CRITERIA that might be considered in evaluating your idea for ing this challenge. (Consider "who" and "what" might be affected by your .)

respect to each criterion that you listed, consider ways you might improve idea you stated on page 43. List below ways to overcome each of the idea's tcomings as revealed by your criteria.

Q U E S T I O N N A I R E

d you like most and/or find most helpful about the session?

d you like least and/or find least helpful about the session?

find your progress through this session encouraging?

thing discourage you as you proceeded through the session? If so, what?

have any suggestions for improving the session (to make it more interest-
re effective, etc.)?

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION ED015677

State University of New York at Buffalo

0 -- Applying the Total Methodology to Our Own Problems or Challenges

fail is at least to learn; to fail to try is to suffer the inestimable
t might have been."

Chester Barnard

hinkers make many false starts, and continually waver between unmanage-
ies and systematic attack."

Harry Hepner

w proved was once only imagined."

Proverb

---

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1965, University of Buffalo Foundation, Inc.

ious sessions, you used worksheets which covered the five phases
approach to meeting a challenge: Fact-Finding, Problem-Finding,
lution-Finding, and Acceptance-Finding. You will now use another
ended to deepen further your understanding of this process, as
de greater practice in strengthening your creative abilities,
terms of a problem of your own. Since you will spend the entire
problem, you will want to select one that is interesting and
to challenge you.

t, you will be asked to force a more imaginative approach to the
problem. Instead of choosing your "best" ideas from the idea-
you will be asked to choose the "strangest" ones. You will then
our solution-finding and acceptance-finding with respect to these
as. Besides the creative practice this should provide, the experi-
esult in less habit-bound solutions!

k through this set, you will notice that most of the instructions
n earlier sets have been omitted. It is hoped that this time you
follow the general structure of this method as a guide, adapting
uit the special needs of your own particular problem.

-- continually review and amplify earlier worksheets in the set as the process unfolds.

-- pile up alternatives at each step, deferring judgment.

-- utilize incubation to capture thoughts whenever they occur. Review your ideas on previous pages as you progress, to help the incubation process.

-- enrich your own background of knowledge and experience by the stimulation of the thinking of others after the session is over.

problem has been carried out to illustrate each step of the process.
cluded for your convenience only; you may or may not care to refer

---

List pr
think c

1. Wha

2

The
workshee
student
solving
prepar
(Mr.
Cour

2

3.

4.

5.

6.

7.

8

0.

1.

2.

15.

16.

17.

18.

Now g
sure
pages

I. "The M

opp ties f em-solving. To help you

(…rried out on this set of
problem attacked by a
er, in a creative problem-
r student, Bruce G. Whiting.
uts of the sample write-up.
member of the Creative Leadership
ive Education Foundation.)

hom would you like to get
along better?
changes for the worse do you
in attitudes of others?
ld you like to get others
to
hanges have to
int
What take
. What is wa
17. What is too c
18. What "bottlenecks
19. In what ways a
20. What wears
about?
What would you like to organize bett

Here we sort out
and list problems
we face or anticipate

hristmas Card mailing list time
problem.

uitable location for building our
new home.

the January peak of bills.

way to keep my wife from
becoming bored when she quits
work to have our baby.

re of my wasted time to work
every day.

ld costs too high; lower im
my income.

ould I give my wife for Christmas?

take on a second job?

one of the above which you would most like to attack. Be
will challenge you throughout the session! (Use additional

List proble
think of pr

1. What wo
acc
2. What do
3. What wo
4. What do
for?,
5. What mo
6. What ar
7. What ar
8. What ma
9. What mi
10. What ha

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
etc.

Now go ba
sure to c
pages as

I. "The Mess"

rtunities for creative problem-solving. To help you
r the following:

do, have,
happen?
do better?
ad more time
, etc.?
ke to get

d goals?
atly?
anxious?
s did you

ned about?
at would you like to organize better?

11. With whom would you like to get along better?
12. What changes for the worse do you sense in attitudes of others?
13. What would you like to get others to do?
14. What changes will you have to introduce?
15. What takes too long?
16. What is wasted?
17. What is too complicated?
18. What "bottlenecks" exist?
19. In what ways are you inefficient?
20. What wears you out?

ne of the above which you would most like to attack. Be
will challenge you throughout the session! (Use additional

Write an ex
creative attack
not editorially.
a "verbal pictur
tions like: Who
does this occur?

T

Career in
is on th
up an
devoted
story a
live ou
day, a
prospec
her li
discour
creativ
with g
be ma
impact
lessene
of the
homem

(Use additional

icular Situation ("Fuzzy Problem")

he situation, or "fuzzy problem" that you chose for
ous sheet: (Tell as a "news story" -- reportorially,
Be cautious in use of adjectives and adverbs. Snap
ation, all that you know about it, etc. Answer ques-
What is happening? When does this occur? Where
s occur? How does this occur?)

has been enjoying a professional
rcial Art. Now our first baby
and she is about to give
ing job that she has been
several years. Our second
t is small. Her parents
n, most friends work all
nsportation is difficult. The
of a radical change in
bits. It may prove quite
to her because of her strong
nd enjoyment of dealing
f the transition could
gradually I feel the
change would be
use of the growing appeal
reer as Mother and

ed.)

II

Write an exp
creative attack f
not editorially.
a "verbal picture
tions like: Who
does this occur?

(Use additiona

ar Situation ("Fuzzy Problem")

situation, or "fuzzy problem" that you chose for
s sheet: (Tell as a "news story" -- reportorially,
e cautious in use of adjectives and adverbs. Snap
ion, all that you know about it, etc. Answer ques-
What is happening? When does this occur? Where
occur? How does this occur?)

ed.)

The following questi
related to the situation
tions, not judicial or cr
information; if you would

Questions

1. What is wife

Where might I find the an

(b) present employer (c)

(d) (e)

2. Does she have any

Where might I find the an

(b) parents (c)

(d) (e)

3. What home
activities does s

Where might I find the an

(b) myself (c)

(d) (e)

4.

Where might I find

(

Other

5

What w
How mu
What w

Whe

(b

(d)

(Use additional pages as

t-Finding

formation, **facts**, you would like to have
eceding sheet. (List **fact-finding** ques-
on't worry whether or not you can get the
the question.)

	Answers (to be obtained from **best** sources suggested at left)
und?	Age 24; degree in art, 4 years
le	experience; self-supporting
s)	since starting school, creative,
	well recognized in
ies?	several art media
le	All hobbies center around
	various aspects of art
?	Enjoys unique and
le	creative home entertain-
	ment and experimental
	cooking.

ons might include:

family income?
es a new mother have?
nvironment?
c!!!

P. S. Don't forget to s

(Use additional pages as

act-Finding

for the answers to the questions you have raised!

IV. Problem-Finding

List all the creative-type questions (problems or challenges) suggested by the facts of the last two sheets. (Such as: "How might I...?", "What ways might I...?", "What ideas might I produce to...?", etc.) If "fact-finding" or "judicial" type questions occur to you, convert them to "creative" types by stating as, "How might I find out...?", or "How might I decide...?" How many problems of this type are suggested by the "situation" and the additional facts you have been able to gather about the situation?

1. How can I find new hobbies that will interest her?
2. How can she pursue her present hobbies on our
3. sharply curtailed budget?
4.
5.
6.

Broadest statement chosen

"What is the real problem?" "What is my basic
here?" Ask "Why" of each problem you have listed.
result of these questions you ask yourself, try to
For example, asking "Why" of the problem, "How might I
atch the mouse led to the restatement, "How might I get rid of the mouse?" Try
find problem statements (questions) that give you the largest number of approaches.

7. In what ways can my wife be saved from
8. aggravation and boredom in changing from
9. an art career to diapers, dishes and dusting
10. full time?

Now that you have broadened the problem, what other creative aspects or approaches ("sub-problems") can you see that you didn't list earlier (at the top)?

11. How can I find out what others have done in
12. similar circumstances?
13. How can I help her during this transition
14. period?

Now circle the best, most promising problem statement for creative attack (from all listed). Perhaps it is the one that would give you the greatest leeway, the largest number of approaches or areas for exploration, -- the one that includes most of the other ones ("sub-problems"). Or it may be one of the narrower statements that is really the crux of the situation. In any event, choose the one which is most significant to you, -- the one most in need of creative attack.

Then "star" all others listed that would fit under this selected problem statement (ones that are "sub-problems" or "areas for exploration" under selected problem statement).

NOTE: You may want to go back and add facts onto Worksheet II, and questions onto Worksheet III, now that you have restated your problem. With the new wording, you may be able to list many more facts now. (Use additional pages as needed.)

IV. Problem-Finding

(Use additional pages as needed.)

V. Idea-Finding (deferred judgment)

m Statement: (Selected on previous sheet)

re your statement above is clear, concise, as brief as possible, worded as a
ram;" also, be sure that it starts with words such as "What ways might I...?",

(tentative leads to solution) from deliberate idea-finding. (Use starred
roblems" of previous sheet as approaches to spur ideas.)

lo for walks.
evelop home-art hobbies
ive advice on home decorating
Make commercial Christmas cards
old afternoon card parties
il paint for an art show
old a "one man" art show
o free lance art work at home
o a neighborhood survey to find new friends
o weekly shopping day by day
each children's art classes at home
ake up a musical instrument
each creative cooking at home
aint wall murals and sell
esign furniture, drapes, etc
atalog and sell creative cooking recipes
and paint dishes, ties, etc

MINIFY
COMBINE

REARRANGE
REVERSE

nt:

ow go back and "star" ideas that are more general in nature -- the "approaches," ough which you might find many more specific ideas.

f your original problem statement was quite broad, you may find that your ideas on this sheet are really "sub-problems." In effect, you may have only "sur- the problem for possible "approaches" for attack. For example, consider the m, "How can I increase sales in this territory?" You might list ideas such as, n more customers," "step up advertising," etc. In cases like this you would one of these "approaches" at a time, and then probe for more specific ideas. can I obtain more customers," "How can I step up advertising," etc.) In such you will want to repeat this Worksheet (using one of the more specific "sub-ms" as the problem statement each time), and follow all subsequent Worksheet ures for each of these approaches, or for the one best approach.

IDEA-FINDING

list all the ideas you can. Let yourself go! Defer judgment! After you xhausted yourself of ideas, go back and circle the ones that seem to be strange.

Modify?

Magnify?

Minify?

ange?

Combine?

Reverse?

READ OPPOSITE PAGE FIRST!

Modify?

Magnify?

Other Uses?

Substitutes?

UTION-FINDING BY MAKING NEW OR STRANGE IDEAS USEABLE

for this exercise you are going to try to create useable ideas from
eemed strange to you -- or the ones you hadn't thought of before.
ignore the format below. Inasmuch as another person's sample work
vely meaningless on this exercise, we have provided a blank page
your thoughts. Good luck to you. You are on your own!

Criteria (as "checklist" for modifying ideas)	Modifications (suggested by Criteria)

Rearrange? Combine? Reverse?

pages as needed.)

The
lance art
as: (1)
providing
activity.
idea, as

Summary o
its solut

has
abun
alter
have
it w
Some
shou
alrea
star
a p

to apply first the idea of getting his wife to do free
He discussed it with her, and pointed out such advantages
ial bank account for the baby from the profits; and (2)
ildren an opportunity to observe a profitable creative
nd his wife then thought of many ways of implementing the
.

nd how it was solved (or what progress is being made towards

ffort expanded on this problem
l rewards and satisfaction in
the door has been opened to so many
nd combinations that both of us
up the challenge and are working on
ful thought and a hopeful outlook.
materials used to recruit clients are
v. Several good accounts have
n secured, the upward struggle
l of course our problem is no longer

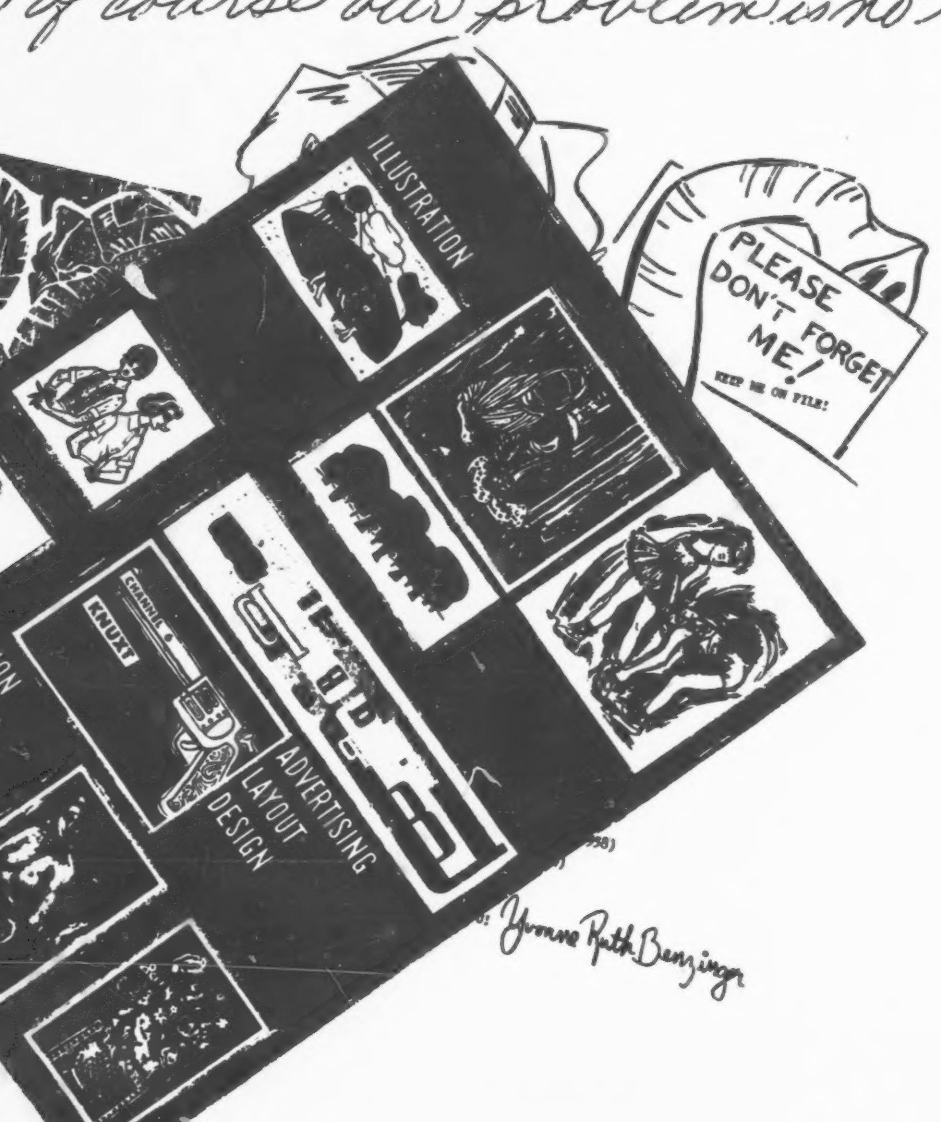


ILLUSTRATION
PLEASE DON'T FORGET ME!
KEEP ME ON FILE!
KNUXT
ADVERTISING
LAYOUT
DESIGN

Yvonne Ruth Benzinger

Ways
effective
New chal

MY PLA

ACCEPTANCE-FINDING

g, overcoming objections, gaining acceptance, insuring
, etc. Who might help? What special times? Places?

Summarize here)

Your creat
ideas that are
and look over t
have time, you
ideas into effe
work on your "s

Having fol
sheets for a th
you can reach a
or strange ide
decision and de
feel that "thi
solving. But,
ways of "stret

s experienced the satisfaction of
s creatively usually finds that sat-
e is adequate motivation for further
:. Satisfaction, in this sense, is
ous with self-confidence."

--- Eugene Raudsepp

the present problem has left you with many unused
alue. Record some of these "unfinished" thoughts
ly for new ideas worthy of implementation. If you
e to try now to polish and adapt some of your other
meeting your challenge -- particularly if your
was not fruitful in this exercise.

the entire creative problem-solving process on work-
may have been able to demonstrate to yourself that
lution -- and in this particular case, to make a new
probably found satisfaction in reaching the "final"
of action for finding acceptance for it. You may
t you now have the whole story of creative problem-
to come. There are other interesting and effective
ination, as you will see in the next sessions.

learn after you know it all that counts."

--- Ethel Barrymore

---

1. What, if anyt
2. What, if anyt
3. Was your prog
4. Did anything
5. Did you find
6. Did you come
worksheets?
7. You have now
sions as to
this particu

Check one: T

8. Explain brie
9. Do you find
10. Do you find
11. Do you have
ing, more e
below or on

UESTIONNAIRE

ke or find particularly helpful about this session?

islike or find not helpful about this session?

e session encouraging to you?

as you proceeded through the session? If so, what?

mplete than the previous set of worksheets?

while solution to the problem you attacked on the

gh sessions that you probably have definite impres-
eelings about each new one. How would you compare

Among the better ones ___ Average ___

oorer ones ___ The worst! ___

ined from this session?

re able to think up ideas as you work on a problem?

g ideas in the idea-notebook that was given to you?

s for improving the session (to make it more interest-
? If so, please write these and any other comments
de.

---

*SELF

Session

"Luck is often simply
for all of us to see.

"...Full consciousnes
a sunset, a waterfal

NAME ____________

SCHOOL ____________

DATE ____________

---

*This project is sup

Copyright 1965, Univ

R

COURSE IN APPLIED IMAGINATION

ED015677

y of New York at Buffalo

ing our Observational Abilities

n opportunity -- an opportunity that is there

Robert P. Crawford

Once you fully open your senses to anything -
ade of grass - the joy comes."

Wayne Amos

. S. Office of Education (Grant No. 7-42-1630-213)

lo Foundation, Inc.

With habit at work in all of
tions are seldom fully picked
ically associate them with pr
catalogues and fits the new s
being aware of the process.

As a result, we take advantag
our senses. We shut off our
expected to receive. We acce
we were willing to accept our
of deferring judgment and see
defer judgment of ideas, we
our senses bring to us.

When one can, at his own com
components, then he can take
create valuable new ideas.

Let's try to catch every sin
senses (sight, hearing, tast
very wide and start with no
mind. Let's stretch our obs

ctations we get from tradition, sensa-
We receive new stimuli, but we automat-
lar ones. Our automatic mental machinery
the old pigeon holes without our ever

small percentage of the observations of
oo soon -- when we have received what we
ial observations in much the same way as
s as solutions to our problems, instead
lternatives. However, just as we can
fer" closing in on the meaning of what

an object to its simplest perceptual
ptual experiences and rearrange them to

that we get through all of our five
smell). Let's open up our receivers
at all, i.e., with a completely open
bilities.

e and examine it closely. Take about five minutes to list
tions you can make about it. Use deferred judgment.

20

(3)

(3)

In the pre

descripti

(4)

the use of a checklist of twelve

extending your ability to __________.

observe, perceive

Let us quickly review th

function
substance
structure
color
shape
texture

Inherent in these _____

smell, hearing, touch a

(5)

st below:

five senses: sight,

descriptive, classifying, twelve

Making full use of the senses in gath

tive ____________________ of meeti

y alterna=

ways, means, etc.

In 1839 Charles Goodyear noticed a mixture of sul
been spilled and carelessly left on a hot stove.
shrugging, he thoroughly observed the accident wi
ties. By observing "melting" and "sulphur" and "
vulcanization process for which he had been searc

Creative ideas often result from careful ________

combinations.

from
publ

h had
and
ibili-
d the

nusual

dyear–
t
d
...”

, Inc.

ation, awareness, study, etc.

applying our imagination to all types of perplexing situations
ent, we must constantly become more aware of what surrounds us.
the use of all five of our ________________________________.

iving, etc.

e the scope of our observations by breaking through our

___________.

habi

We will fi

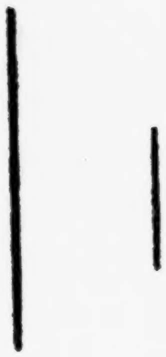
and experi

erve, and the parts our imagination

______________________.

observation, perc

Write what you see at fi



(11)

w.

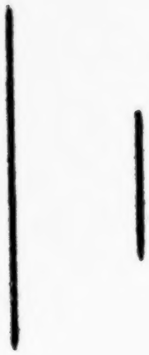
You probably saw two lines, une

other.

r than the

Suppose we tell you that the lines ar

write below how you would describe th



Now

There now seems to be depth in the picture.

ther away than the other.

Both lines seem to be the same size because the nec
make it reasonable for the lines to become telephon
your imagination working upon your past ___________

o

y

ce, learning, observations, knowledge, etc.

the illustration below. Try to visualize these lines as telephone
same length. Imagine the surrounding landscape and describe it,
by sketch.

the scene is to picture the left pole on a hill, with wires
es, etc. You may have interpreted it in other ways.

your mind came from within -- from your past tc.

The orig

your ser

(16)

was your past experience, working upon

____________________________ of the lines.

perception, pic

retation, etc.

In other words, what

as well as from

external, outside, other, etc.

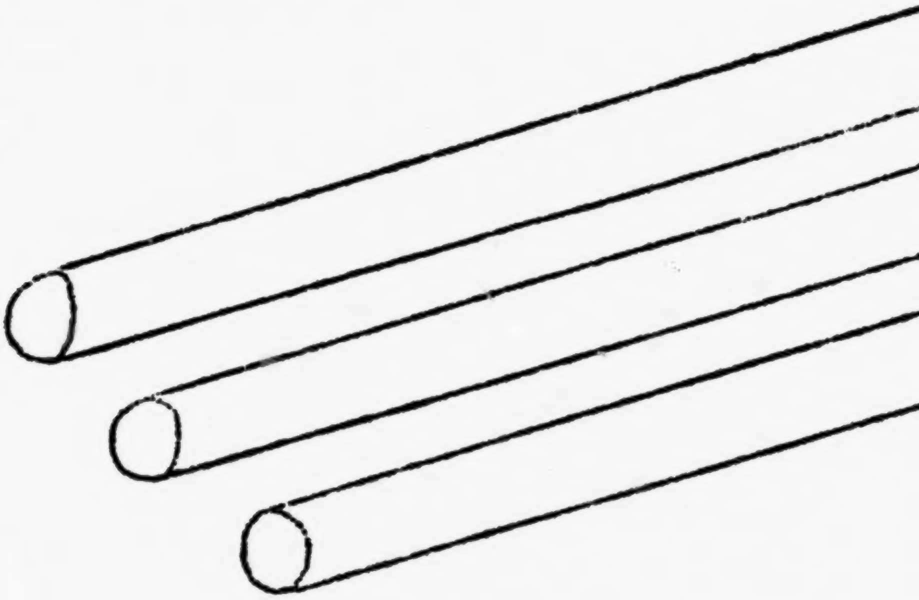
Your mind organizes in a variety

you to ____________________ fro

This enables

observe, perceive, make considerations,

Tear out this sheet and refer to it as you complete



(20)

the right half of the drawing. The object now appears to have ________

.

etc.

(21)

of the drawing. The object now appears to have ____________

an observation; but your mind organizes what you
that is meaningful for you, but not necessarily

pictu

"I invent nothing

(23)

rancois Rodin
culptor

Let us try a simple test

past. Do not look at you

four on your watch (or cl

____ I'm not sure.

____ Definitely a "4."

____ Definitely a "IV."

____ Definitely a "III

____ Some other type o

(24)

you have been in the

oom). The numeral

oper item)

Surprisingly enough, many people

You may say, "So what? I don't care w

to know is what _______________ it i

ing I want

time, hour, etc.

This demonstrates the fact that we observe only what

observe, and we fail to ________________ what we

for.

ect, need, etc.

rve, recognize, etc.

(27)

ext page and write on that page all that you see there.

tretch their imagination beyond the black dot.

e so, consider the dot in relationship to the entire
relationship. Describe further what you now see on
a line to separate your added observations from the
and continue writing on page 28. If you need more
page.)

Yo
th
th
it

to the dot, its relationship to the edges of
our corners, etc. You may have remarked that
that it is to the right of the center, that
ole, a coin, a bullet-hole, a tunnel, etc.

Careful s
and deta

(30)

e ____________________ of facts

aware, consciou

Regarding the picture
picture is "The Face o
any additional observa
you did not see before

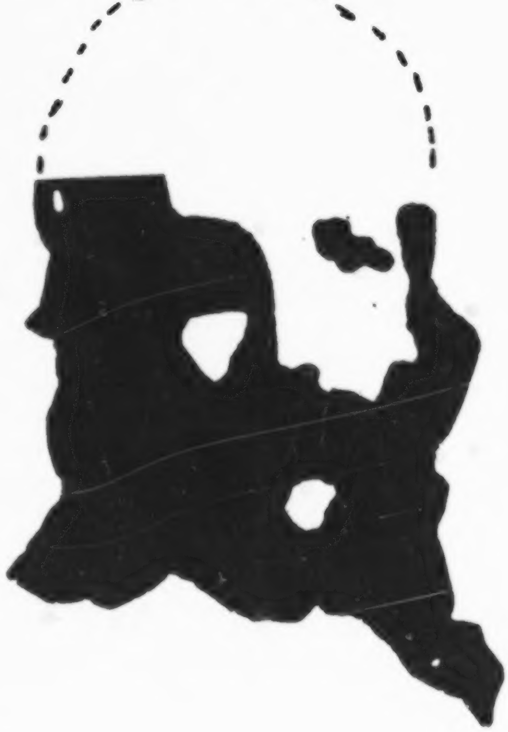
(31)

the title of this

n and write below

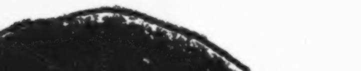
ble to see anything

There is a story behind the
took a picture of melting s
amazed to see the tender, l
The photographer became a



2)

Chinese photographer
eveloped, he was
out from the page.
ence.



Charles S. Whiting, in Creative Thinki
distinguishing characteristics of a cr
potential in a new idea or new configu
source whatsoever."

It has been told that sometimes in the
is made in the pattern, the rug is not
imagination combine to incorporate the
more beautiful than the original.

In industry, and perhaps in the chemic
more difficult to find a practical use
the new product in the first place.

It has been reported that when a certa
one customer remarked: "You've got th
ing for questions."

Spend as much time as you still have a
first two in the order in which they a
ever order interests you most.

of the
the
from any

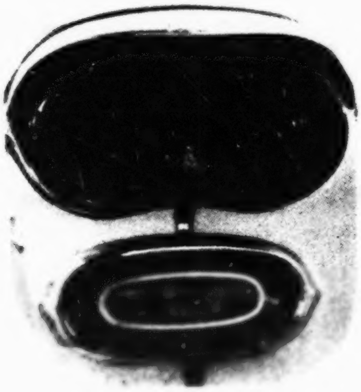
mistake
dom and
, often

ften
evelop

plastic,
art look-

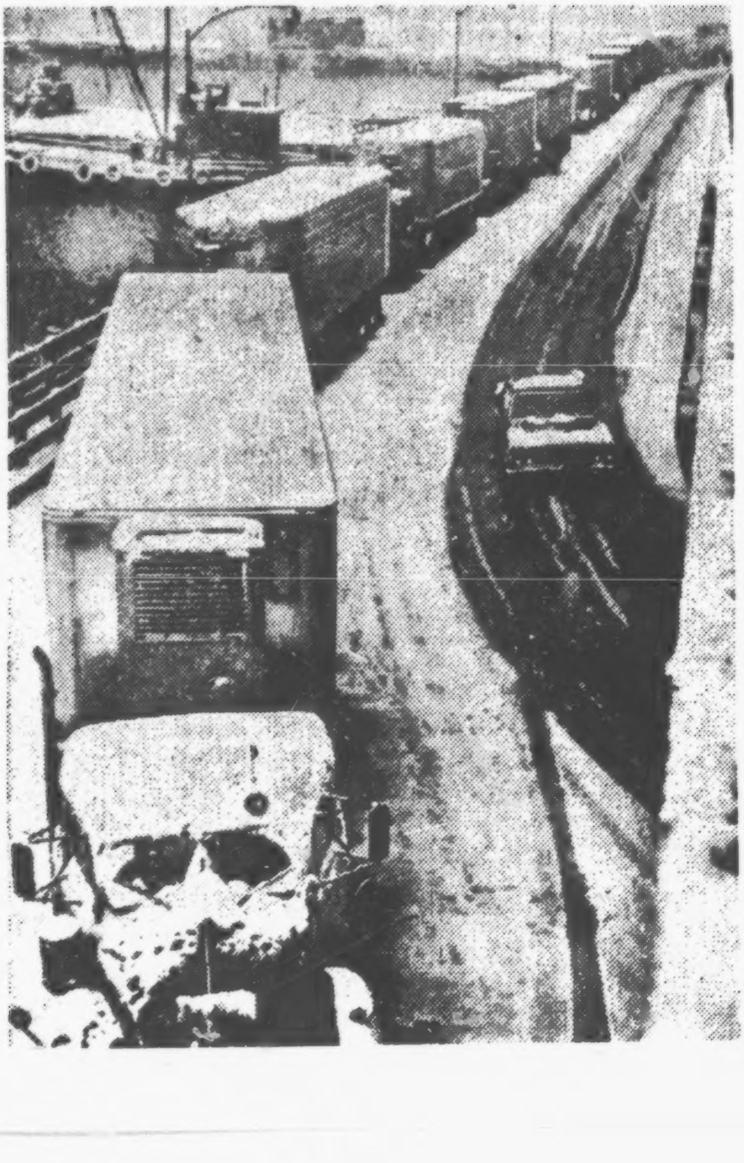
Do the
n what-

Describe below what you see in this phot



(35)

be below what you see in this photograph. What else might it be?



(36)

vations might you make while waiting at a stoplight?

(37)

e staple, attached on the right. Make as many ob-
t it. Then list improvements and other uses for it,
improvements and other uses each observation suggests.

Improvements (DEFER JUDGMENT)	Other Uses (DEFER JUDGMENT)

rovements or other uses you like best.

which you are sitting. Observe acutely, with all
air, but everything else you can observe. As a
idea for improving the chair, jot down the observa-
gests.

List f
struct

ssible improvement in the design or con-

Indicate below or
a year's time. Th
Apply everything y
erately -- now and
book, the thoughts
erately attempting
others and add the

(40)

u would like to attain within ip yourself attain the goal. far as you list ideas delib- o capture in your idea note- on -- when you are not delib- to discuss your goal with

1. What are your gen

2. Did anything disc

3. List by page numb

particularl

failed to m

the session? If so, what?

elt were:

____

____

---

*SELF-INSTRU

State

Session #22

"Ideas aren't born in ivory
growing with ideas."

NAME ____________

SCHOOL ____________

DATE ____________

---

*This project is supported

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R

ION

ED015677

ses

e a fertile field

T. Trundle, Jr.

Grant No. 7-42-1630-213)

The previous session emphasized our v

also make significant contributions t

the other four senses below.

1. ______________________

2. ______________________

3. ______________________

4. ______________________

senses

s. List

hearing, perceiving sound, etc.

smell, detecting odors, etc.

taste, detecting flavor, etc.

touch, feeling, etc.

In 1878 H. de Chardonnet accidentally spilled a b
collodian, and failed to wipe it up immediately.
some of the solvent had evaporated, leaving a sub
tacky. The substance was the basis for rayon, ar
of observation through the sense of ___________

touch (and sight), touching, feeling, etc.

As de Chardonnet wiped the material with a cloth, long thin strands of collodian were pulled out. Upon handling these strands, he realized from the ___________ of them that he had begun the preparation of rayon, or artificial silk.

feel, texture, touch, etc.

(4)

Thus, the discovery of rayon was preceded by a fortunate accident in which the young chemist realized success by ______________________ the feel of a substance.

observing, noticing, being aware of, etc.

(5)

A chemist who happened to eat his lunch without washing his hands after performing some experiments, accidentally discovered the remarkable ______________ power of saccharine.

sweetening, sugaring, etc.

(6)

One of the chemicals on his fingers gave his sandwich an unusual sweetness. Further investigation of this observation led to the discovery of saccharine as the cause of the sweet ____________________.

taste, flavor, etc.

(7)

We are perhaps less likely to realize the importance of odor and taste in everyday experiences than we are to realize the importance of the other ____________.

senses, means of perceiving, etc.

(8)

A new experimental drug called DMSO has recently aroused great interest in the medical world. It is a by-product of the paper-manufacturing process and has been used as a chemical solvent for several years. Two men working with DMSO rubbed some of it on their hands. Within minutes they noticed a distinctive oysterish taste in their mouths and a strong garlic-like ____________________ on their breaths.

odor, smell, etc.

____

(9)

They guessed that the DMSO had worked its way through their skins and blood streams, and that it might therefore have potential value as a medicine. This possibility had not previously been ________________________.

recognized, considered, known, thought of, tested, etc.

(10)

Increased observational ability can help us to break away from pre-conceived notions and to create new ________________________ for meeting all types of challenges.

ideas, means, alternatives, solutions, answers, ways, etc.

A parish had the challenge of a cracked church bell which would be extremely expensive to repair. One of the men working on the problem noticed that the cracked bell produced a unique, distinctive tone and suggested that a musical composition be written specifically for this bell. Thus a new and useful solution to a problem resulted from one individual's use of all his powers of observation, particularly his sense of ______________________________.

hearing, detecting sounds, etc.

(12)

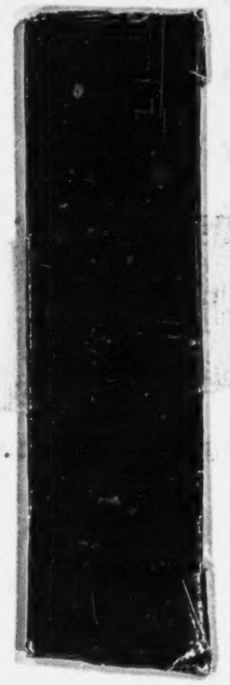
His observational ability enabled him to break away from his pre-conceived ideas which would have limited him to ____________________ solutions.

conventional, obvious, stereotyped, common, fewer, etc.

"If to possess knowledge alone is to be educated, then an encyclopedia is better educated than a man."

David Page
Author

Try the attached commercially-available product. List all the observations you can make about it before, during, and after chewing it.



Here are some of the more common observations:

licorice taste

sticky

smells

cracky sound

black/white color

loses taste

sweet

changes color after chewing

smooth

changes shape and texture with chewing

rectangular shape

similar to other gum

aluminum wrapper

rubbery, pliable

powder on top

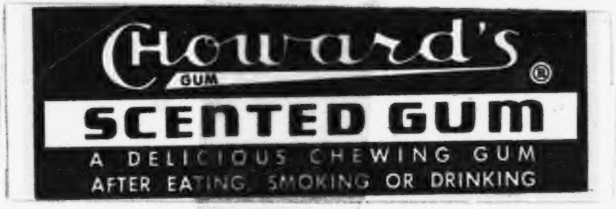
If you haven't already done so, consider the checklist of descriptive categories and list further observations. See if you can add some less-common observations.

WRIGLEY'S
SPEARMINT
CHEWING GUM

Here are some of the less common observations:

light weight
becomes harder to chew
multi-colored
slippery
graphite feel
tastes like chocolate Necco wafer
doesn't make very good bubbles

We hope you have been able to make more observations about the gum than you would have previously, and will enjoy chewing it. In order to alleviate any concern on your part as to just what you are chewing, we have included the wrapper below. We have also included a new stick of more conventional gum in case you didn't like the taste of the other.

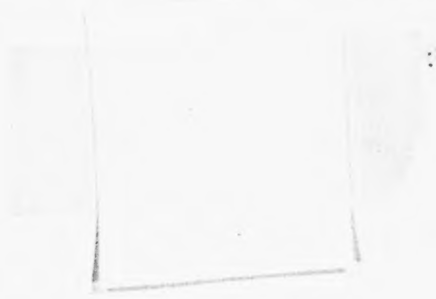

Choward's
GUM
SCENTED GUM
A DELICIOUS CHEWING GUM
AFTER EATING, SMOKING OR DRINKING

Again, we have seen how far we can go beyond the surface or the obvious in our

_________________ of an everyday object or situation.

observations, perceptions, study, etc.

As a final example of how our senses make us more aware of the attributes of an object, tear off and thoroughly examine the attached material. List all the observations you can make about it.



sticky on one side

white

rectangular

criss-cross woven, rough pattern

sharp corners and edges

glue smell

glue taste

smooth on one side

etc.

Have you torn, crumpled and otherwise handled and scrutinized the material? If not, do so and record any additional observations.

feels sticky (adhesive qualities)

tastes like stamp or envelope

tears like cloth

same color on both sides

sounds like rat-a-tat of drum when torn

softens when wet

smells musty

not torn easily

wrinkles when bent

shreds when torn

thin outer coating

not easily crumpled

crunchy, crinkling, snapping sound

etc.

The observations you have made about this gummed-cloth mending-tape should help you generate ____________________ ideas for its use.

new, more, many, good, etc.

(20)

Many of us go through life unaware of the subtlety and range of our senses, because we need only a fraction of the information they provide us in order to be able to perceive the world well enough for our own ______________________.

needs, purposes, survival, use, good, satisfaction, etc.

(21)

In analyzing perplexing situations, we must be aware of the details -- the facts about the situations and personalities -- in order to sense and define effectively the ____________________ we face.

challenges, problems, objectives, etc.

We become more aware of our environment through our five senses:

1. ____________________

2. ____________________

3. ____________________

4. ____________________

5. ____________________

1. **hearing, perceiving sound, etc.**
2. **sight, seeing, etc.**
3. **touch, feeling, etc.**
4. **smell, detecting odors, etc.**
5. **taste, detecting flavors, etc.**

(23)

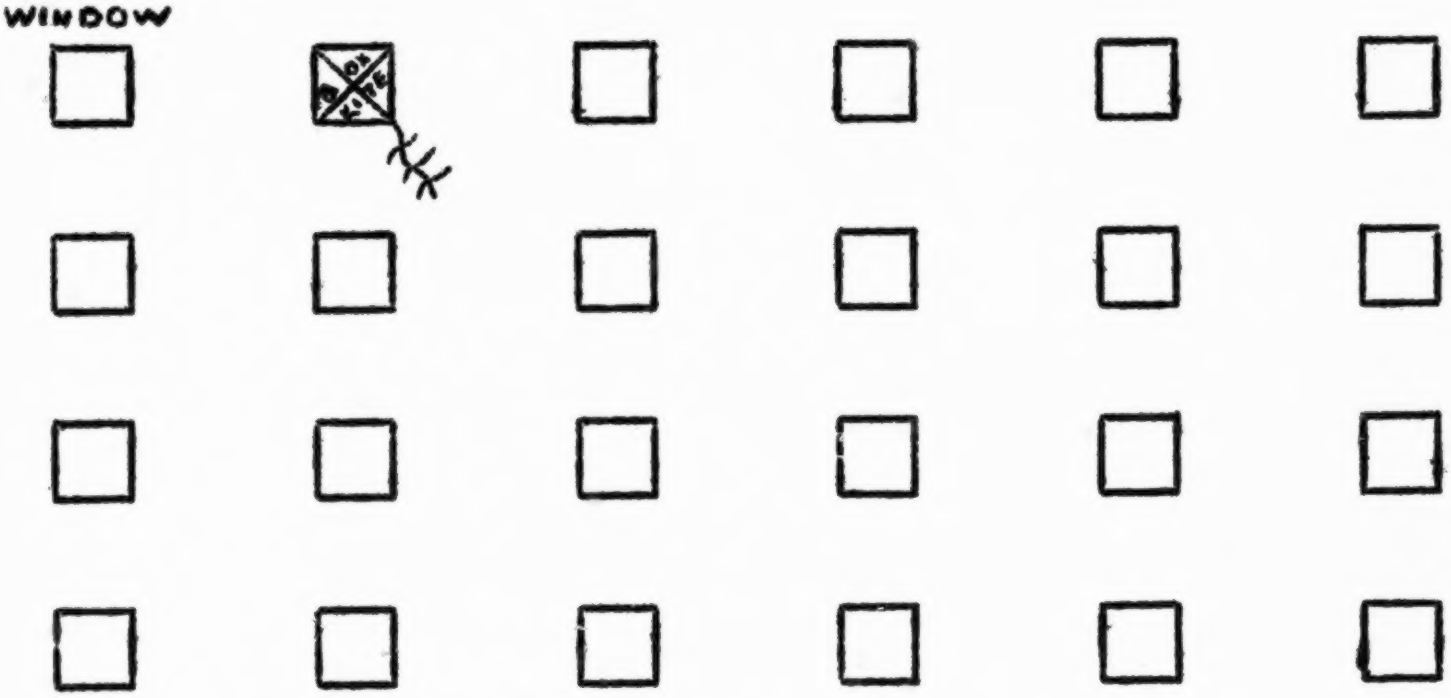
By increasing the scope of our observations through our senses, we become more aware of our surroundings and can generate more ideas for the _______________ of any problem or challenge.

solution, handling, meeting, etc.

"Everyone knows it, but the idea has not occurred to them."

Proverb

Look around you, out of the window, etc. Think about any items in your everyday surroundings which resemble or bear in any way the shape of a square. In or on the squares below, draw or describe all such items that you can see or think of. Two examples are given.



The intent of the previous two sessions was to help you stretch your observational abilities by practice in using all of your senses. By catching every stimulus, thereby reducing objects and situations to their simplest perceptual components, we are better able to rearrange these components to create new ideas.

In the next two sessions, we will introduce techniques for stretching the imagination further in idea-finding.

Spend as much time as you still have available on this and the remaining pages. You may spend your time on the pages in whatever order they interest you most.

Observe carefully everything you can see in the room or through the windows. Note something particularly interesting that you observe. Then try to apply the observation to something else. Where else or in what other ways might it be valuable? List below as many ideas as you can. (For instance, you might be attracted to a wallpaper design. You might then think of applying it, for example, to dress material or to the design for a necktie.)

(28)

Think of a taste you enjoy. Then list as many ways as you can that you might apply that particular taste to other foods or articles. (For example, peppermint flavor has been applied to the glue on envelope flaps; pizza flavor has been applied to ketchup.)

(29)

Think of an odor you enjoy. Then list as many ways as you can that you might apply that particular odor to other items. (For example, a particular perfume applied to your sweetheart's photo.)

Think of a sound you enjoy. Then list as many ways as you can that you might apply that particular sound to other situations, including its substitution for unpleasant sounds. (For example, bird's chirping substituted for alarm-clock clang.)

(31)

Think of a touch-sensation you enjoy. Then list as many ways as you can that you might apply that particular touch-sensation elsewhere. (For example, feel of velvet added to steering wheel cover.)

QUESTIONNAIRE

1. What was your general reaction to this session?

2. Did anything discourage you as you proceeded through the session? If so, what?

3. List by page numbers any examples or exercises you felt were:

particularly effective ______________________

failed to make a point ______________________

R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

ED015677

Session #23 -- Idea-Spurring Verbs Applied to a Situation

"The person who is capable of producing a large number of ideas per unit of time, other things being equal, has a greater chance of having significant ideas."

J. P. Guilford

"Questions are the creative acts of intelligence."

Frank Kingdon

NAME ______________________________

SCHOOL ____________________________

DATE ______________________

---

*This project is supported by the U. S. Office of Education (Grant No. 7-42-1630-213)

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(1)

In this and the next session, we will stretch for ideas.

The list of "idea-spurring questions" in Alex F. Osborn's book, Applied Imagination, provides a check-list to assist us in our search for ________________.

ideas, alternatives, etc.

Osborn's questions fall under nine general headings. All of these are extensions of (and mentioned in connection with) the three major manipulative verbs discussed in earlier sessions. List below the three manipulative verbs discussed earlier:

1. ____________________
2. ____________________
3. ____________________

magnify, make larger, etc.

minify, make smaller, etc.

rearrange, arrange differently, etc.

(3)

Practice in searching for ideas through Osborn's nine general headings may help us further to clarify the full power of the three major manipulative ________.

verbs, techniques, etc.

(4)

By applying each of Osborn's nine general questions to a challenge, just as we applied the three manipulative verbs, we find that the number of additional ideas that can be __________________ is as unlimited as our boundless imagination.

generated, produced, formed, created, found, etc.

(5)

In most sessions, we have been changing objects to improve them. However, we can also change the circumstances around the object to improve the situation. In this session, therefore, we will attempt to change the ________________ rather than merely change the object.

circumstances, situation, environment, etc.

Consider the following challenge: "In what ways might a department store sell thousands of novelty bottle-openers?"

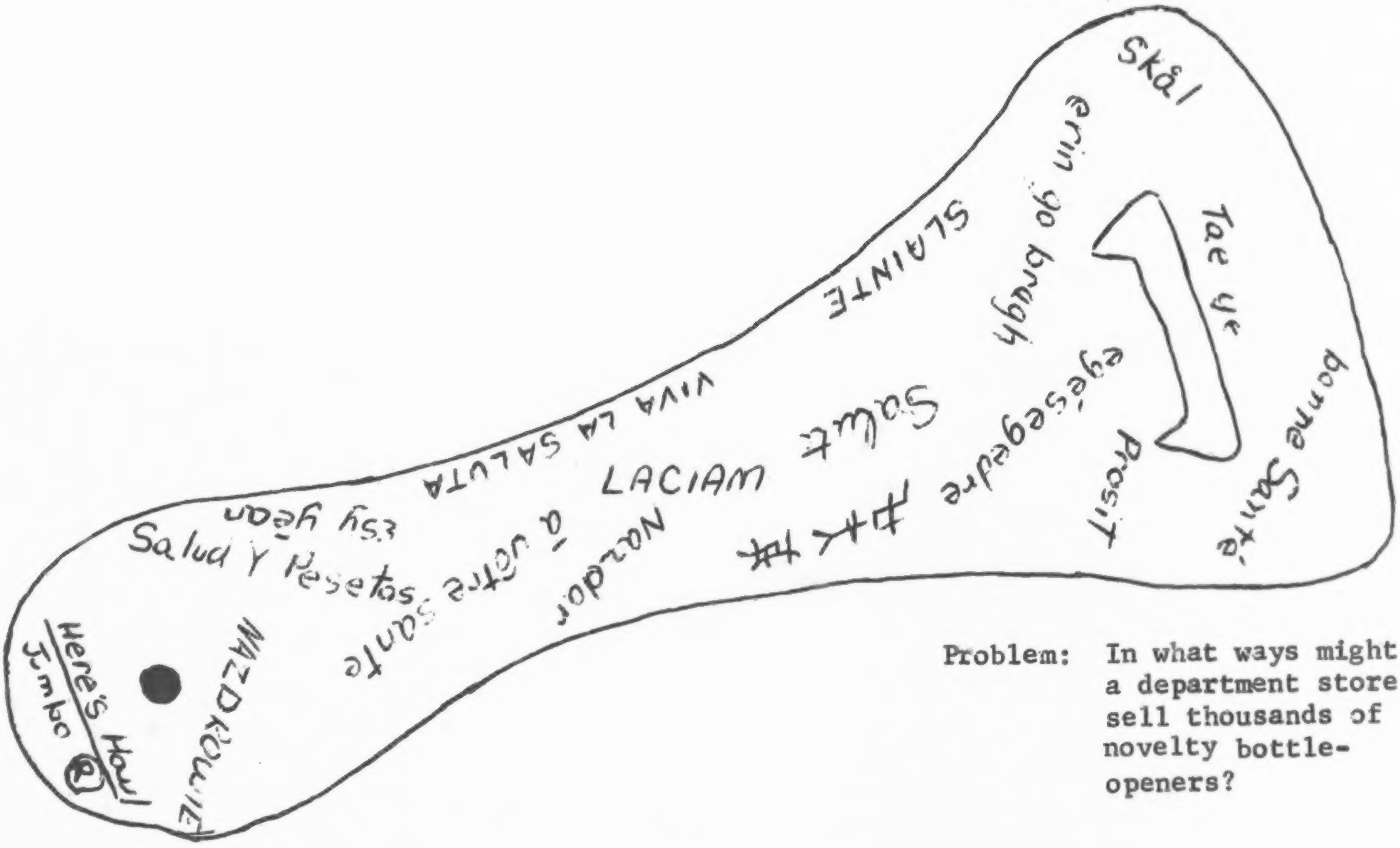
As each of the nine idea-spurring questions is introduced, it will be printed in capital letters. This will be followed by a few clarifying expressions. Then, you are to list two or three ideas which the idea-spurring questions suggest to you for selling the bottle-openers. Accompanying the material on each of the nine questions you will find a cartoon which illustrates what this same idea-spurring question might have suggested to one person with respect to a different challenge.

"Humor is appropriate incongruity."
anon.

Do not be concerned if one idea-spurring question triggers an idea which we may have suggested as a response to a different idea-spurring question. Differences in responses to these pages are expected. Questions trigger different and unique responses in all of us because we are not all the same. It is the way in which you react as an individual that indicates your ability to think creatively.

Examine the illustration of the bottle-opener on the next page. Then proceed as directed on the following page. (You may tear out the illustration to refer to as you proceed.)

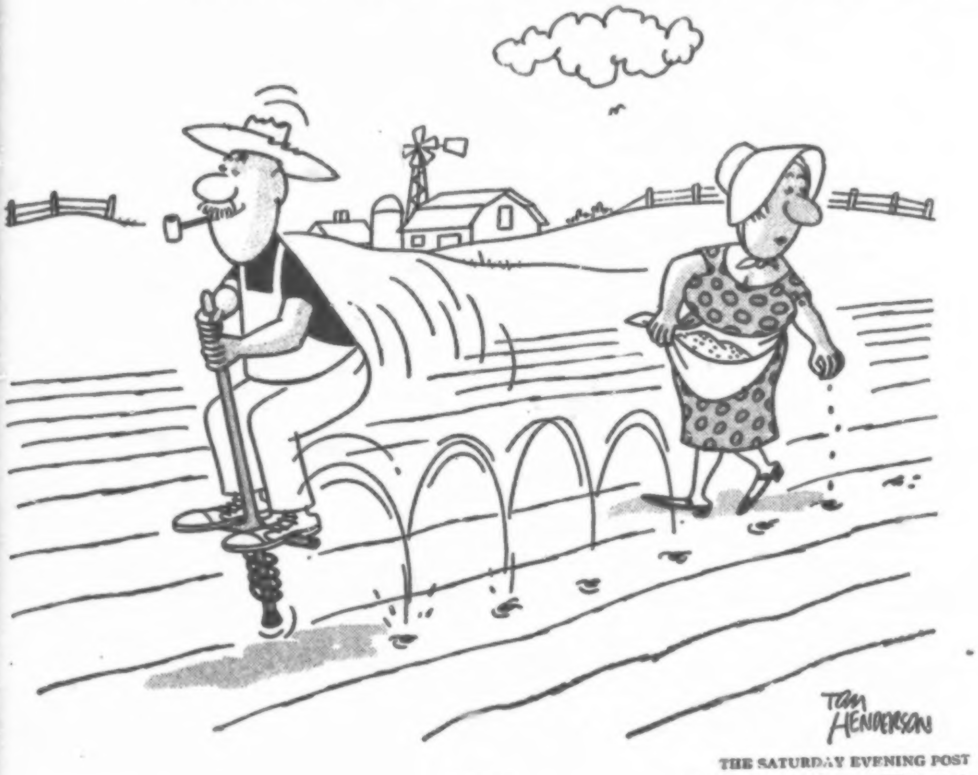
(7)


Skål
erin go bragh
SLAINTE
Tae ye
bonne Santé
Prosit
egészégedre
Salut
干杯
VIVA LA SALUTA
LACIAM
Nazdar
à votre santé
εis ygεan
Salud Y Pesetas
NAZDROWIE
Here's How!
Jumbo ®

Problem: In what ways might a department store sell thousands of novelty bottle-openers?

Osborn's first idea-spurring question is:

(1) PUT TO OTHER USES? In other words: New ways to use as is? Other uses if modified? List 2 or 3 ideas which this question suggests.



THE SATURDAY EVENING POST

PUT TO OTHER USES?
New ways to use as is?

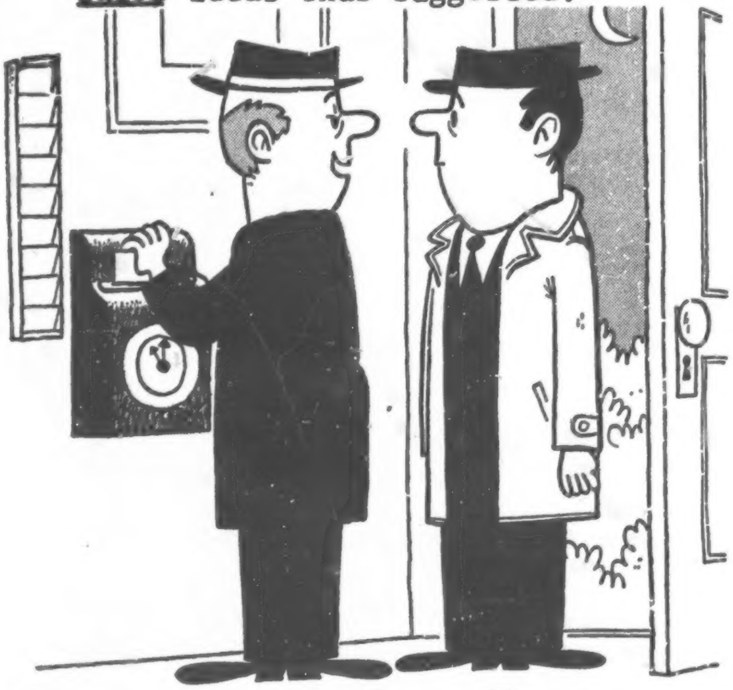
Sell with beaded chain for use as keychain, for clubs, cafes, etc.

Sell in stationery department as a paperweight.

etc.

The second question:

(2) ADAPT? What else is like this, what other ideas does this suggest? Does the past offer a parallel? What could I copy? Whom could I model-after? List 2 or 3 sales ideas thus suggested.



SATURDAY EVENING POST

"One thing about Gladys—she never waits up for me."

ADAPT?
What could I copy?

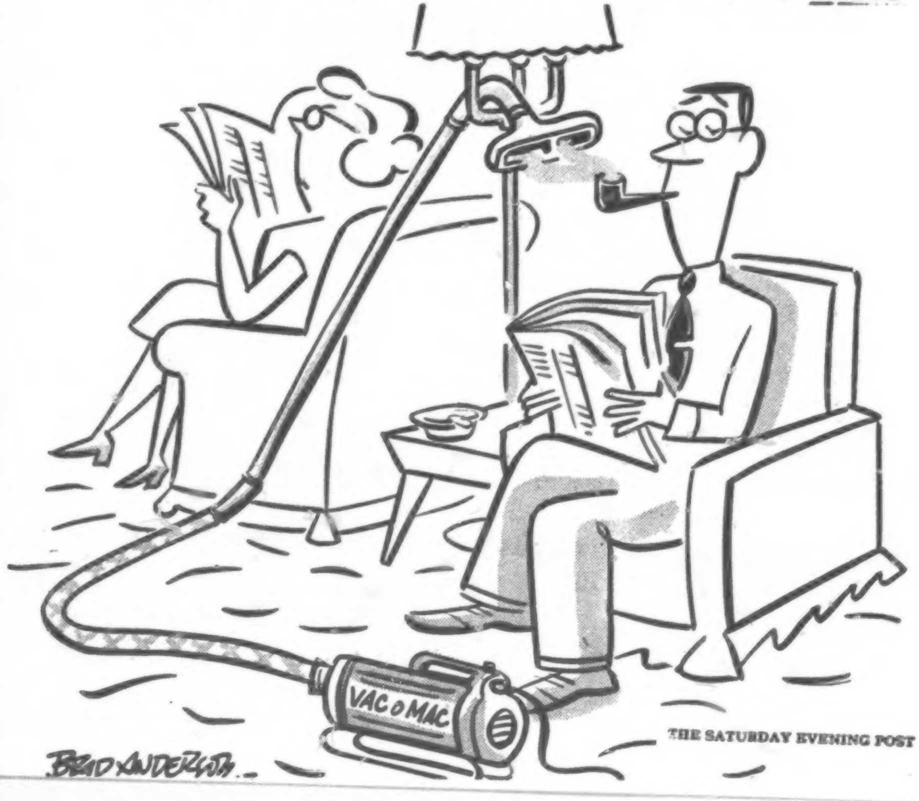
Appearance suggests idea of decorative piece. Sell as a wall ornament for a game room, etc.

Copy ideas from other successful promotions.

etc.

The third question:

(3) MODIFY? New twist? Change meaning, color, motion, sound, odor, taste, form, shape? Other changes? List 2 or 3 sales ideas triggered by the above.



THE SATURDAY EVENING POST

MODIFY?
New twist?
Change meaning, odor?

Add motion, color, taste, etc., to display of the opener.

Give free coke at display, opening bottles with opener.

Change location of item. Sell in supermarket, etc.

etc.

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

So far, you have worked with three of Osborn's nine g

They are:

(1) PUT TO OTHER USES?

(2) ADAPT?

(3) ________________?

(ii)

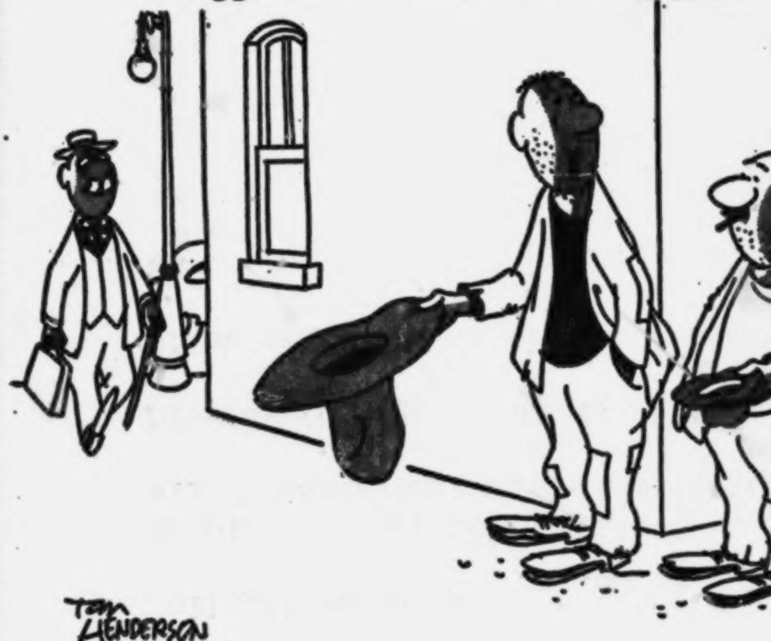
l idea-spurring questions.

72

MODIFY?, change, etc.

Question four is our old friend:

(4) MAGNIFY? What to add? More
Longer? Thicker? Heavier? Extr
Exaggerate? List 2 or 3 sales



"Trouble with you is you haven't learned to think

THE SA

? Greater frequency? Stronger? Higher?
ue? Plus ingredient? Duplicate? Multiply?
which MAGNIFY suggests.

ENING POST

MAGNIFY?
Extra value? Exaggerate?

Sell gift-wrapped.

Display an oversized bottl
sized "cokes" or giant-siz

Display in many locations

Offer personalized openers

etc.

ith opener and offer an introductory deal with family
root beer, etc.

once.

ames engraved on back.

Question five

(5) MINIFY?
Narrower? Lig
quent? Less e
opener? List

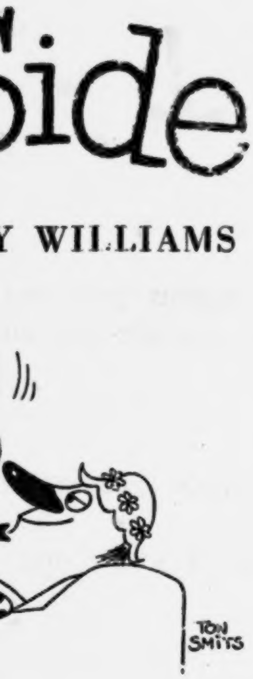
LOOK ON T

Light

EDITED BY G

familiar:

o subtract? Smaller? Condensed? Miniature? Lower? Shorter?
Omit? Slower? Streamline? Split up? Understate? Less fre-
What ideas does MINIFY suggest for the sale of the bottle
below:



MINIFY?
Condensed? Miniature?
Lower? Less effort?

Reduce

Give m

Reduce

Omit s
tomers

etc.

e of ads and run many little spot announcements.

ture souvenir "coke" bottle and make up unusual display.

ce.

of expressions on opener in advertising material. Offer prizes to cus-
filled in greatest number of expressions.

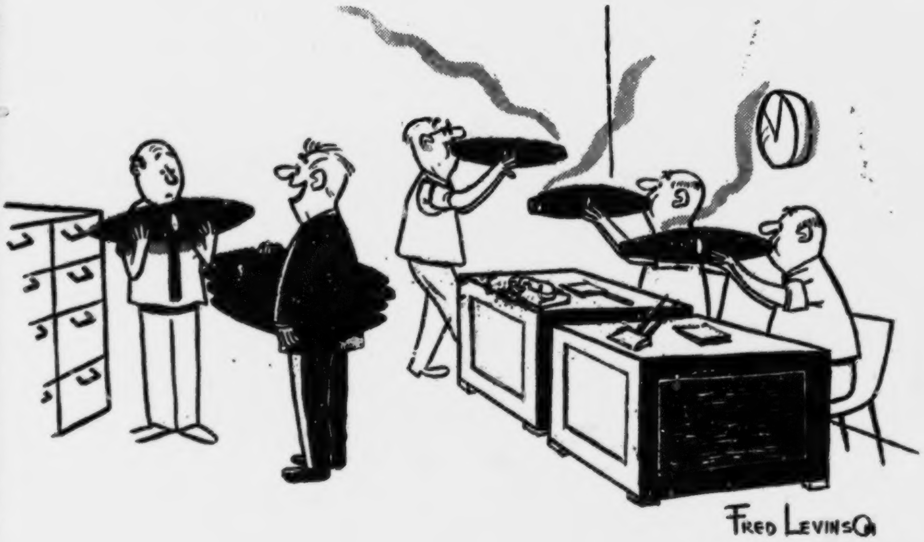
(14)

Notice that MAGNIFY? and MINIFY? suggest far more than making the bottle opener larger or ______________________, as was mentioned in the earlier manipulation sessions.

smaller, littler, etc.

Instead, they have suggested adding something to the wrapping or to
reducing the price, or including a miniature item in the sales promo
change need not be made in the ______________________ itself.

To review what you have covered so far, label the following sketch below a ones on the next page according to which of the first five idea-spurring q you feel they exemplify. A particular sketch might suggest more than one to you. If so, label it accordingly. Try to use all five idea-spurrers.

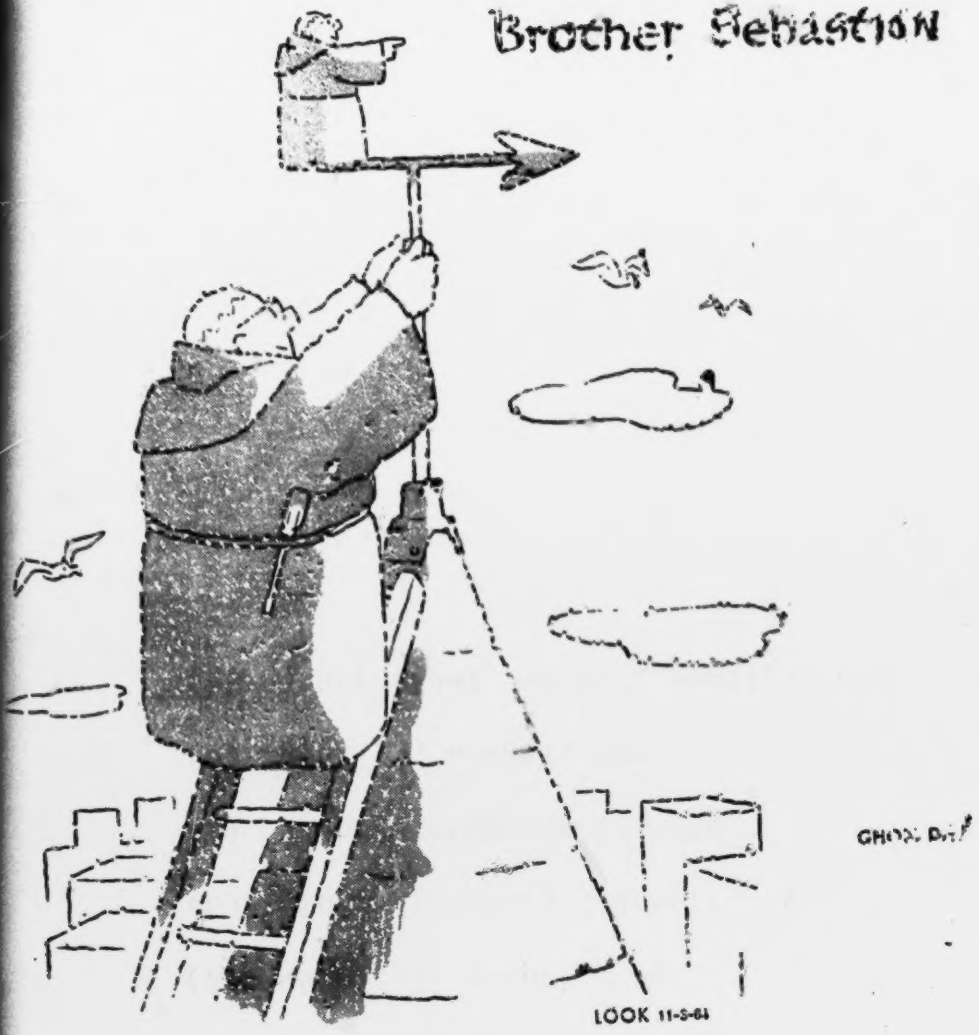


THE SATURDAY EVENING POST

"14 pounds, 11 ounces..."

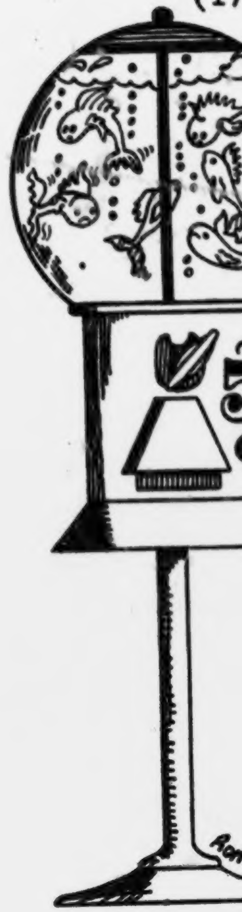
(a) ______________________________

ne
ions
tion

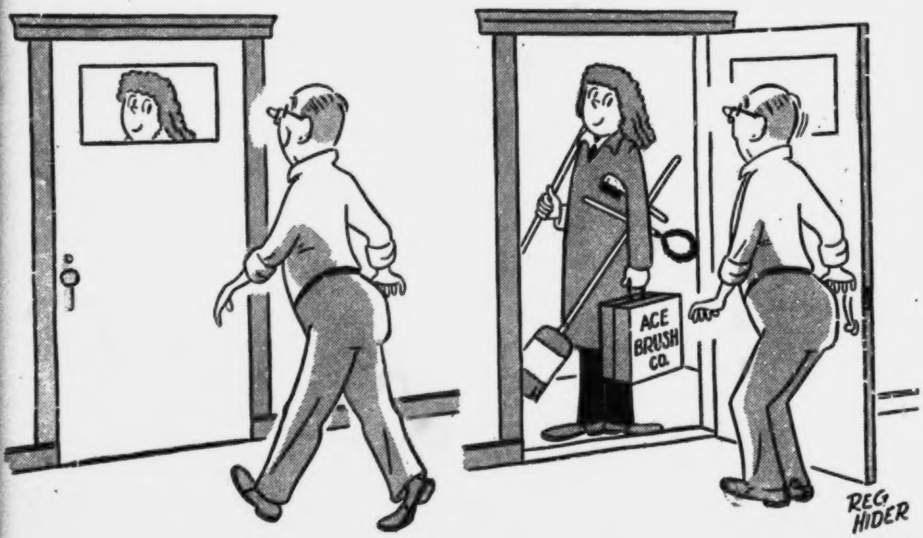

Brother Sebastian
GHON DAY
LOOK 11-5-64

(b) ____________________

(17



(c) ____________


ACE BRUSH CO.
REG HIDER

(a) magnify?, adapt?, etc.

(b) minify?, modify?, adapt?, etc.

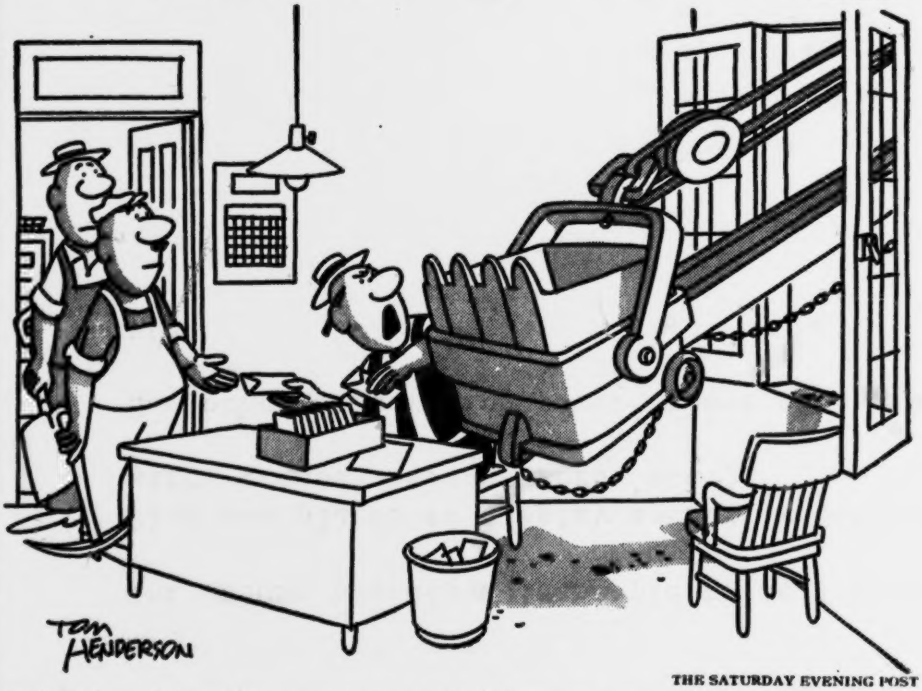
(c) adapt?, other uses?, etc.

(d) modify?, adapt?, etc.

(e) other uses?, adapt?, modify?, etc.

The sixth question to spur ideas is:

(6) SUBSTITUTE? Who else instead? What e material? Other process? Other place? Ot of voice? Other time? List 2 or 3 sales i



THE SATURDAY EVENING POST

"Nothing doing! You come in and pick up your pay like other men!"

(18)

nstead? Other ingredient? Other
ower? Other approach? Other tone
from the above:

SUBSTITUTE?
What else instead?
Other power? Other approach?

Get others besides salespeople to

Find new places to display opener
ality groups' headquarters, etc.)

Use other advertising power (powe

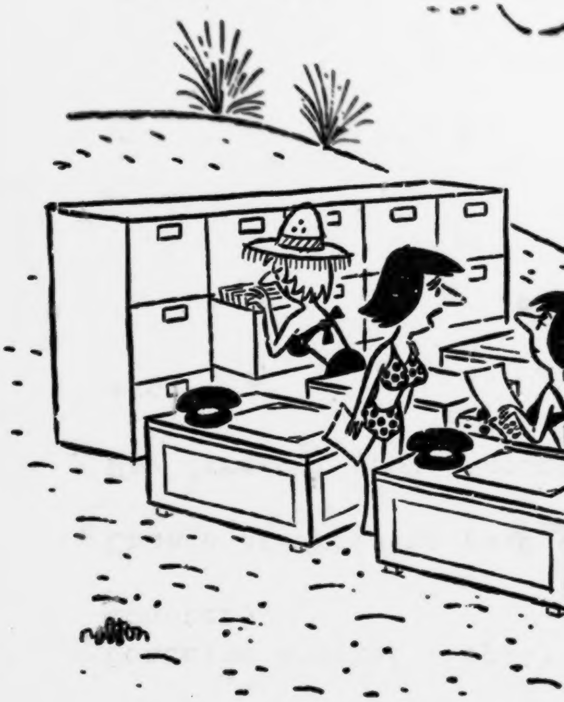
etc.

them (delivery men, etc.).

atically (hang on entrance doors, in nation-

excited user, etc.).

The verb REARRANGE? is t
Other pattern? Other la
Transpose cause and effe
REARRANGE?



"It's nice but I'd still rather have two we eventh idea-spurring question. Interchange components? Other sequence? Change schedule? Earlier? Later? Change pace? List 2 or 3 sales ideas suggested by

cation with pay."

THE SATURDAY EVENING POST

REARRANGE?
Interchange components?
Other layout?
Change schedule?

Conceive unusua
counter).

Change advertis

Use frequent sp

etc.

play patterns (make chain of openers and string them over

ace (run ads more often).

nouncements.

Bef

the

que

to

(20)

we complete the list of idea-spurring questions, let us mention again how questions, SUBSTITUTE? and REARRANGE?, as well as the five preceding ns, can be applied to all aspects of the __________________ and not just object alone.

challenge, situation, problem, etc.

(21)

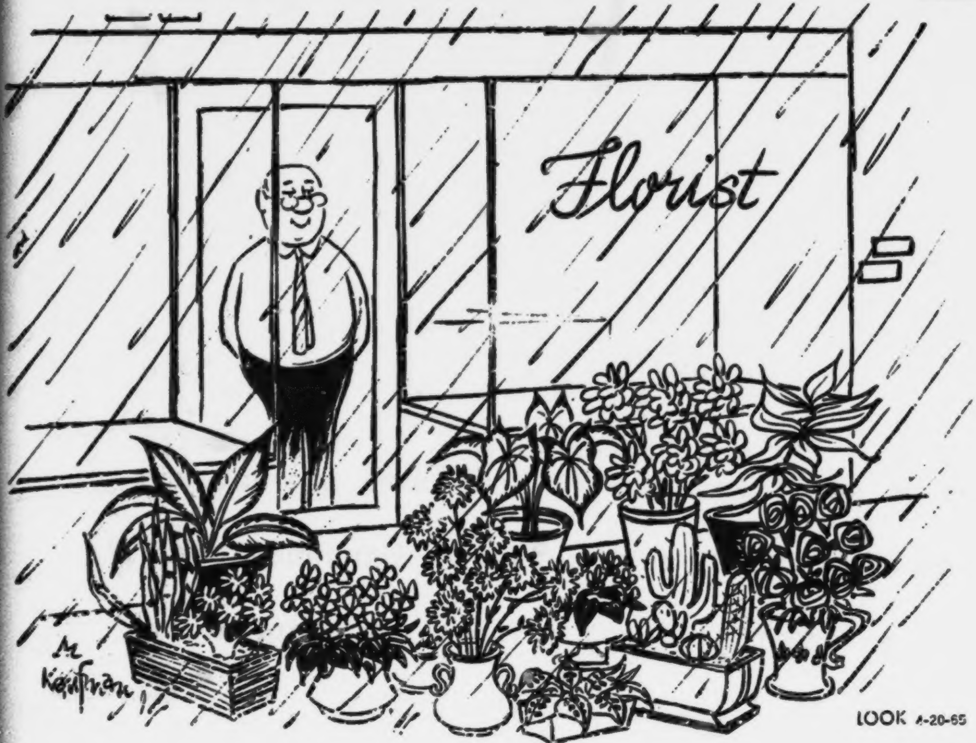
A challenge often concerns an object plus the circumstances surrounding it.
can apply our questions to these ________________ as well as to the objec

circumstances, situations, etc.

obvious, common, routine, expected, etc.

Osborn's eighth idea-spurring question is:

(8) REVERSE? Transpose positive and negative? How about opp
around, backward, upside down, inside out? Reverse roles? Ch
tables? Turn other cheek? List 2 or 3 sales ideas which REVE


Florist
M Kaufman
LOOK 4-20-65

REVERSE
Inside

s? Turn it
shoes? Turn
suggests.

Run a white on black ad (black picture of opener with wh

Print something on other side (imprint names, etc.).

Run contest among non-selling employees to see who can s
friends, etc.

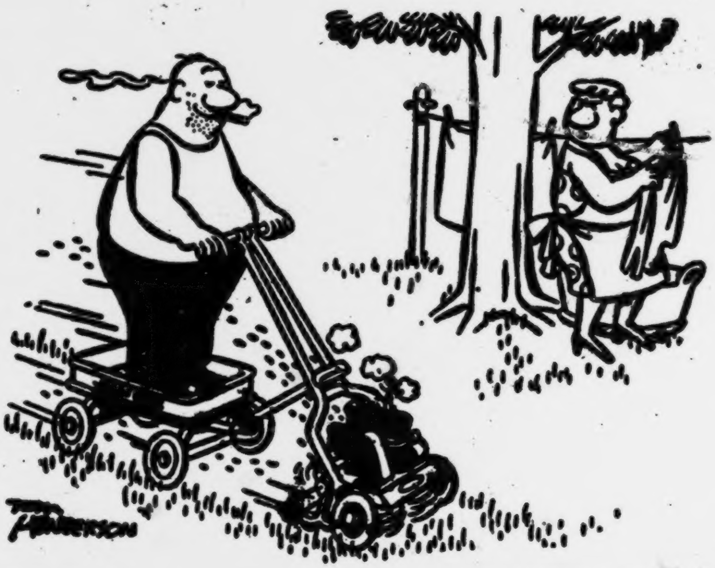
etc.

ettering).

he most to their

The last of the nine questions is:

COMBINE? How about a blend, an alloy, an asso
Combine purposes? Combine appeals? Combine i



Tom Henderson

The Saturday Evening Post

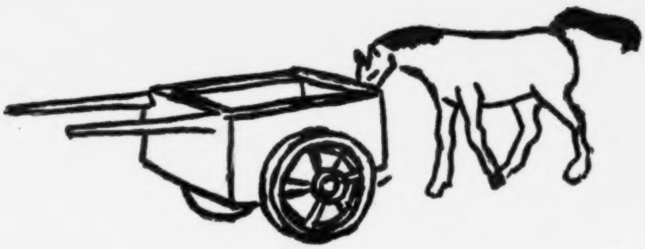
(24)

t, an ensemble? Combine units?
List 2 or 3 sales ideas:

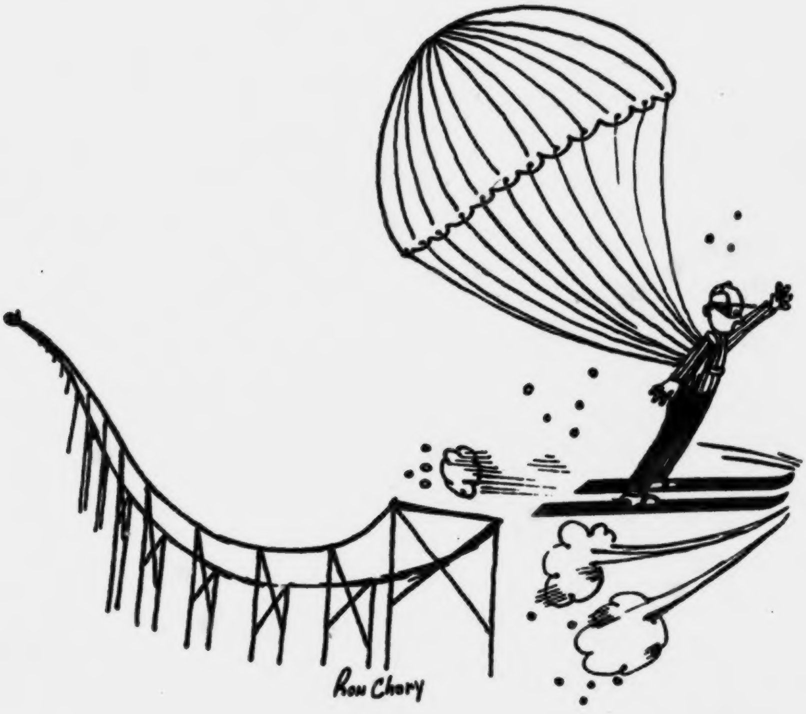
COMBINE?
Combine units?
Combine purposes?

To review the last four idea-spurrin
according to the question(s) you thi
idea-spurrers.

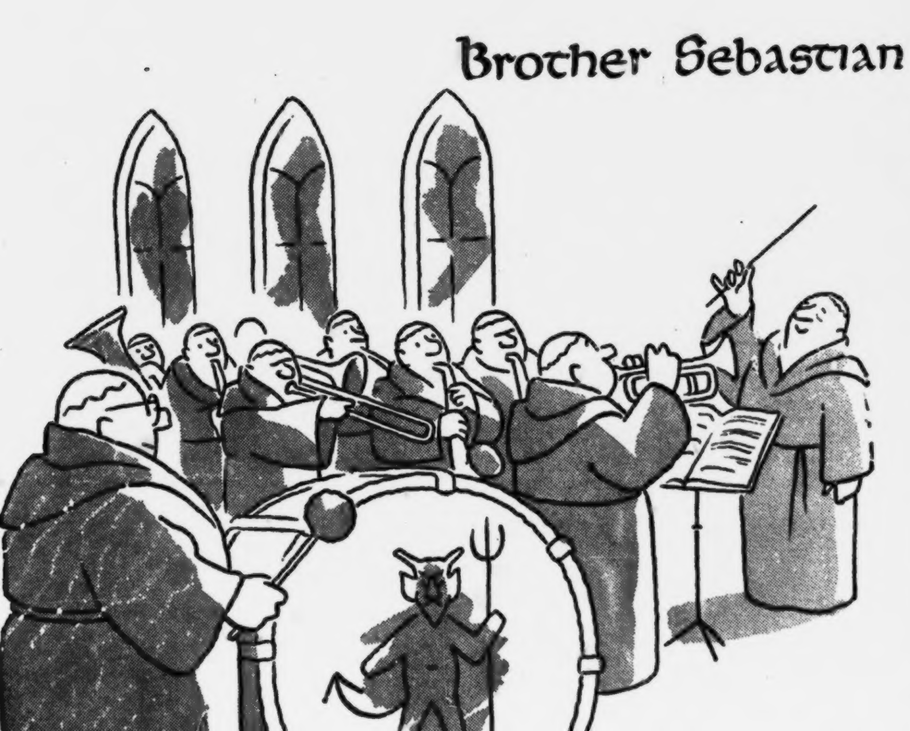
(a) ______________________________



stions, label the following sketches
ey exemplify. Try to use all four



(b) ______________________________


Brother Sebastian

(a) reverse?, rearrang

(b) combine?, substitu

(c) rearrange?, revers

(d) substitute?, combi

ubstitute?, etc.

etc.

tc.

etc.

"A man's mind s
dimensions."

hed by a new idea can never go back to its original

Oliver Wendell Holmes
American Jurist

Spend

The q

all t

much time as you still have available on this and the remaining pages.

ion, COMBINE? may well be an all-purpose idea-spurring word which suggests
of ______________________ verbs.

manipulative, operative, etc.

(28)

You may magnify an object, idea, or situation, for example, by ________ it with some other object, idea, or situation.

combining, merging, consolidating, etc.

minification, making smaller, etc.

Besides resulting in magnification or minification, combining

vide an idea of potential value through a ________________

or circumstances.

30)

ents may pro-

__ of elements

rearrangement, reordering, etc.

List as many of Osborn's nine idea-spurring

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(9)

(31)

ions as you can:

(1) Put to other uses?, apply it

(2) Adapt?, change?, try it as?,

(3) Modify?, re-style?, etc.

(4) Magnify?, enlarge?, stretch?,

(5) Minify?, shrink?, make smalle

(6) Substitute?, stand-in for?, e

(7) Rearrange?, redesign?, arrang

(8) Reverse?, invert?, turn aroun

(9) Combine?, connect with?, marr

er way?, etc.

tc.

w?, etc.

tc.

with?, etc.

Illustrate below the appli
tion in your life. For ex
a get-together with frien
might use the illustratio

(1) Put to other uses --

(2) Adapt --

(3) Modify --

(4) Magnify --

(5) Minify --

(6) Substitute --

(7) Rearrange --

(8) Reverse --

(9) Combine --

on of each of the nine idea-spurrers to some situa-
e, under "other uses" you might find a new use for
to practice idea-production. Under "adapt" you
the "teach-in," adapted from the "sit-in."

Indicate in your
year's time. Th
Apply everythin
erately -- now c
thoughts that oc
attempting to li
and add their i

notebook, another goal you would like to attain within a ist a minimum of 25 ways to help yourself attain the goal. have learned in this course so far as you list ideas delib- enever else you have time. Capture in your notebook, the to you during incubation -- when you are not deliberately deas. You may also like to discuss your goal with others to your own.

1.

2.

3.

4.

Che

5.

a.
b.
c.

QUESTIONNAIRE

is your immediate, "off-the-top-of-the-head" reaction to this session?

your progress through the session encouraging to you?

anything discourage you as you proceeded through the session? If so, what?

t was your reaction to the particular problems used (selling bottle-openers)?

ne: enjoyed it ______
didn't enjoy it ______
no special reaction ______

t was your reaction to the cartoons and sketches used? Check appropriate m(s):

y were effective __________, especially pages #________________________.
y were not effective __________, especially pages #________________________.
y could be improved __________, especially pages #________________________.

ED015677 I R

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #24 -- Idea-Finding: Forcing Relationships Among Aspects of a Problem

"Just as we can throttle our imagination, we can likewise accelerate it. As in any other art, individual creativity can be implemented by certain 'techniques'."

Alex F. Osborn

NAME ______________________________

SCHOOL ____________________________

DATE ________________

---

*This project is supported by the U. S. Office of Education (Grant No. 7-42-1630-213)

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Expanding on the concept of "forced relationship," as discussed in an earlie session, we may connect or inter-relate various aspects of a problem in ran ways in order to produce new ideas.

Let us try this with a common type of challenge. Three situations, A, B, & are described below. Choose one of these, or write a similar one of your ow which might be more interesting to you. Then work through the procedure whi follows, using Situation A, B, C, or your own situation as the challenge.

Situation A: Suppose you belong to a social club in which one member is tot responsible for the program for each meeting. It is your turn. You want a turn-out and you want everyone to enjoy himself.

Situation B: A birthday is coming up soon for a person for whom you would l to do something special and different.

Situation C: You belong to a small group of students who have eaten lunch t gether in the school cafeteria during most of the current semester. One of group is transferring to another school. It is decided that your group will a farewell luncheon the day following the last day of the term, in honor of departing student. You are responsible for planning it.

Situation D: Describe a somewhat similar situation of your own if you have in mind that you would rather work on.

Let's try to work out the challenge creatively:

Using the checklist, "who, what, when, where, why and how," you
"who" and the "when" are answered. You feel the "why" is also c
you determine to search broadly for alternatives among the ______
__________________ and __________________.

List as many "whats" (things to do) that you can think of which your progra
party might include. (Defer judgment! Strive for quantity. Try to fill t
and the next page.)

Continue listing your ideas on the next page.

(4)

Now go back and circle those you like best on this and the pr ng page.

List as many "wheres" as you can think of for holding t

(Defer judgment! Strive for quantity. Try to fill thi

Continue listing your ideas on the

ogram or party.

the next page.)

page.

Now go back and circle those you like best

(6)

his and the preceding page.

List as many "hows" as you can thi

(Defer judgment! Strive for quant

Continue listing

for carrying out the program or party.

Try to fill this and the next page.)

ideas on the next page.

Now go back and circl

ose you like best on this and the preceding page.

Now, randomly c
under "where" (
choosing the ci
on each page.
interesting and
thoughts. Defe
elements. List

one circled idea under "what" (page 3), one circled idea 5) and one circled idea under "how" (page 7). Do this by idea closest to where you point with your eyes closed, relationships among the three thoughts in order to create able plans from the combinations of those particular three gment! Let your imagination "play" with the three random w the various plans that are thus suggested to you.

go back and circle the plan you like best.

If y

you

side

ad listed 20 ideas under each category, ("what," "where," and "how"), d have potentially at least 20 X 20 X 20 = 8,000 plans you might con- you force the ideas into all possible ______________________________.

combinations, relationships, arrangements, plans of action, etc.

(11)

The number of potential plans is ____________________ greatly by each

under any category.

increased, enlarged, etc.

useful, valuable, practical, sensible, etc.

Even some of the seemingly silly ones may be creatively ______ into ones that are reasonable.

"We are assured that in each one of us there is some
quality which is no respecter of rank or privilege."

re of ingenuity -- a

in H. Schell
hor

Let's see what we can create by combining
3, 5 and 7. Try again to force new relati
and workable plans. Defer judgment. "Pl
see what ideas they may suggest. List be

Now go back and circle the

last circled idea on each of page
ips in order to create interesting
ith the three random elements and
he plans you derive.

you like best.

Spend as much time as you have avail

Another way of using forced-relation
way we manipulated objects or situat
manipulative verbs to ideas we alrea
ideas.

Consider the following example, tak
for instructors:

Clothing merchants in a certain Mid
from their storerooms. Special bur
planned thefts. Although the polic
found the racks stripped of thousan
all, and the thieves gone.

On the next page, list ideas regard
storerooms.

on the following exercises.

s is to manipulate our ideas in the same in previous sessions. We can apply the ave created in order to generate more

om Alex F. Osborn's "Supplementary Guide"

rn city were plagued by a series of thefts alarm systems failed to halt the well- wered the alarms promptly, they always dollars' worth of garments, hangers and

ow to prevent further thefts from the

Now apply the manipulative
you have already listed on
idea of "putting police do
as follows:

Listed idea -- Put police

1. Force relationship by

2. Force relationship by

3. Force relationship by

Etc.

On the next pages, see how
thefts. Do this by forcin
your own ideas on the prev
apply "magnification," "mi
Defer judgment!

s (magnify, minify, rearrange, etc.) to the ideas
previous page. For example, if you had listed the
the storerooms," you might obtain additional ideas

in storerooms:

fying → New idea: tiger, roar of animals on
a record player, etc.

ying → New idea: put a parrot trained to
say "beat it," etc.

anging → New idea: have roving guard with
police dog, etc.

additional ideas you can obtain for preventing the
relationships as in the above example, but with
page. Let your imagination roam as you deliberately
ation," "rearrangement," etc. to your listed ideas.

Write below the
on the previous

n of action you would use, based on your most-promising ideas
es.

You m

"Noti
for c
the h
caugh
hange

Howev
ones!

like to know the solution used:

that all the clothes were hung with the hanger hooks facing the same way, enience in handling, the police captain asked the clothiers to alternate ers on the racks. The next time an alarm went off, the burglars were Instead of grabbing armloads, they were slowly removing the clothes, y hanger."

there are many other possible means. You may have created many better

You will have the opportunity in the following exercises to see how the forced-relationship principle might be applied in creative writing.

List about six or eight characters you might meet in any kind of situation: (Example: banker, fireman, beauty queen, etc.)

Under each heading (a & b), list three or four objectives that any person mig
hope to attain:

(a) Possession of:
(example: car, strength, etc.)

(b) Relief from:
(example: fear, illness, etc.)

List six or eight obstacles which might confront an individual as
reach his goals. (List them under any or all of the three headings

(a) Pitted against:
(example: authority, seniority, etc.)

(b) Being:
(example: ill, "broke," etc.)

(c) Lack of:
(example: tact, education, etc.)

Choose, at random, a type of character from page 22, an objective from page 23, an obstacle from page 24, and a way of overcoming an obstacle from page 25. (You may want to choose your last idea on each page, whatever it might be; or you may close your eyes and select randomly as you did earlier in the session.)

List your four randomly-selected elements below:

Character:

Objective:

Obstacle:

Way of overcoming:

Using the four elements entered on page 26, write a brief story-plot describing the action which might take place. Let your imagination go as you "play" with the four elements. Have fun as you weave them into a brief plot for a story.

Go back to pages 22-25, choose at random a different item from each page, enter them below, and write another brief story-plot which uses the four new elements. However, this time weave yourself into the plot as an additional character!

Character:

Objective:

Obstacle:

Way of overcoming:

STORY:

(Use back of page if needed.)

The preceding writing exercises may show how the imagination can be stimulated through forcing unusual relationships among thoughts and ideas. You may be able to apply this technique to more realistic writing assignments in the future.

The general format used in the story-writing exercise was suggested by the work of the late Frank Striker, originator of "The Lone Ranger" of radio and T.V. fame, in his Creative Writing Workbook.

QUESTIONNAIRE

1. Please jot down your immediate "off-the-top-of-the-head" reaction to this session.

2. Was your progress through the session encouraging to you?

3. Did anything discourage you as you proceeded through the session? If so, what?

4. Did you create any ideas that were especially pleasing or satisfying to you in any of the exercises?

   If so, on which pages ____________________

5. Compared to other sessions, how would you rate this one?

Check one: The best! ___ Among the better ones ___ Average ___

Among the poorer ones ___ The worst! ___

ED015677

*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #25 -- A Challenge to Anticipate

"Genius is one percent inspiration and ninety-nine percent perspiration."

Thomas Edison

"There are one-story intellects, two-story intellects, and three-story intellects with skylights. All fact-collectors who have no aim beyond their facts are one-story men. Two-story men compare, reason, generalize, using the labor of the fact-collectors as their own. Three-story men idealize, imagine, predict -- their best illumination comes from above through the skylight."

Oliver Wendell Holmes

NAME ______________________________

SCHOOL ____________________________

DATE ____________________

---

*This project is supported by the U. S. Office of Education (Grant No. 7-42-1630-213)

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Here is a blank booklet! State a problem you have! Go ahead and release your creative urge as you approach your challenge!

In previous sessions, you have used three different sets of worksheets, all aimed at a creative attack upon a problem. You will now have an opportunity to attack a problem, following this same general procedure, but completely "on your own."

"It takes courage to be creative. Just as soon as you have a new idea, you are a minority of one."

E. Paul Torrance
Psychologist-Educator

"The timid way is safer, but they are slaves who take it."

Publius Syrus
Writer

Indicate below or in your idea notebook, one or two goals you would like to attain in the next five years. (For example: "How to make my record in college very attractive to my future employers?" or "How to assure my selection of the right mate?") Then start listing an infinite number of ways to help yourself attain each goal. Apply everything you have learned in this course as you list ideas deliberately -- now and whenever else you have time. Also capture in your idea notebook, the thoughts that occur to you during incubation -- when you are not deliberately attempting to list ideas. You may also like to discuss your goals with others and add their ideas to your own.

Set up file folders for each goal. Continue collecting your ideas over the months and years. Then develop them into plans of action to achieve your goals.

QUESTIONNAIRE

1. Please jot down your immediate "off-the-top-of-the-head" reaction to this session.

2. Was your progress through the session encouraging to you?

3. Did anything discourage you as you proceeded through the session? If so, what?

4. Did you find it easier to complete than the previous set of worksheets?

5. Did you come up with a worthwhile plan regarding the challenge you attacked?

6. How would you compare this particular session?

Check one: The best! ___ Among the better ones ___ Average ___

Among the poorer ones ___ The worst! ___

7. Do you find that you are more able to think up ideas as you work on a challenge or a problem?

8. Do you find yourself jotting ideas in the idea-notebook that was given to you?

9. Did you define the challenge several ways?

10. What other "worksheet methodologies" did you use consciously? Or unconsciously?

11. Explain briefly what you gained from this session.

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*SELF-INSTRUCTIONAL COURSE IN APPLIED IMAGINATION

State University of New York at Buffalo

Session #26 -- Making "Snap" Decisions Creatively

"To him whose elastic and vigorous thought keeps pace with the sun, the day is a perpetual morning."

Henry David Thoreau

NAME ______________________________

SCHOOL ____________________________

DATE ____________________

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INTRODUCTION

We cannot work forever on a problem. We must make a start, and accomplish what we can in the amount of time available and justified by the importance of the problem. By continuing our effort indefinitely, we could probably improve upon our solution more and more. But, sooner or later, we would run into the law of diminishing returns.

Although we should forever be alert to possible improvements that may occur to us even after our solution is put into effect, the amount of time we should consciously spend on a problem becomes a matter of practical judgment.

The following is a pertinent example presented by E. K. Von Fange in General Electric Review, July, 1955:

"To find the gem, or pearl, of an idea that will give undisputed product leadership is the practical application of the creative process. How does the pearl fisherman find his pearl? Suppose on a given day, he is told to go out in his boat, obtain one pearl, and be back at the shore within a specified time. He will be paid an amount proportional to the value of his pearl.

"Now, some fishermen of narrow viewpoint will dash out, find a pearl, and race back for their commission. But the majority will realize that they stand to gain if, on the way out, they will estimate the return time, probable number of oysters, and the breaking and evaluating time. Thus they know the maximum time they can spend in the water actively searching for and accumulating oysters. By this efficient system the fishermen not only obtain a larger quantity of oysters but also are smart enough to break open all the oysters after their search. The results can then be carefully and judiciously examined, and the largest and most perfect pearl selected, giving both the employer and the divers the greatest return on their investment of time and money.

"Besides showing the value of searching for many methods and soundly evaluating all of them, this analogy shows how the planning and scheduling of creative activity is normally accomplished."

Often we have a very short time in which to act -- perhaps only a minute or so -- and must make "snap decisions." Even under such circumstances, we can use the basic methods practiced in this course to avoid falling into the "habit" trap in our decision-making.

For example, suppose you spilled root beer all over the last page of a long and important business-letter. You were rushing to place the overdue letter into the mailbox in front of your house in time for the last pickup, due any minute. Write below the very first thought that enters your mind as to what you would do.

(3)

One's "habit" reaction might be, "Darn it! Now I'll have to wait for tomorrow's pickup!" But let's apply a "speeded-up" version of the creative problem-solving process we have been studying.

Write the first fact-finding question that comes to your mind.

Now list two more fact-finding questions:

Is there a later pickup at another nearby mailbox?

How important is it that this letter get out today?

Would special delivery get it there as fast if it went tomorrow?

How bad will it look after it dries?

etc.

Write your first impression as to what is the problem:

"How to ____."

Ask "why," of your first definition; broaden it, stating it in __two__ redefinitions:

"How to ____."

"How to ____."

How to recopy the page quickly.

How to get the letter out.

How to get a neat letter delivered.

How to get the message to my correspondent.

etc.

Write below, as indicated, the best of your three definitions from the previous two pages; then write the first idea that comes to your mind as a means for handling the problem.

Definition: ____

Idea:

Now list three other ideas as to possible ways of handling the situation as you defined it on page 7. Trigger ideas by applying the manipulative verbs "magnify," "minify," "rearrange," etc.

mail it tomorrow

call him

send it special delivery

send all but last page -- mark "more to follow"

recopy in condensed form

etc.

(9)

Write the single, most important criterion for evaluating your ideas.

Now write two more criteria you might consider in your evaluation.

speed of communicating

cost

impression on correspondent

ease of doing

etc.

Based on a quick mental appraisal with the criteria you have in mind, decide on the best of your four ideas (pages 7 and 8). Write it below, as indicated; then list one or two thoughts that might help in applying or improving the idea.

Idea: ______________________________

How to apply it or improve it:

"The only time you can't afford to fail is the last time you try."

Charles Kettering
Engineer-Inventor

Here is another problem for a quick decision:

You are unexpectedly invited into the home of your potential date for the spring dance. You are left alone for a minute. As you sit down, you realize that you have forgotten to take off your wet rubbers. Trying to get back to the hallway, you find yourself in the kitchen, where someone is saying: "What kind of a person is it, my dear, who would wear soggy rubbers ALL over my new rug?"

Let's compress the process even more than last time. We will work with only the facts we have; on this occasion there is no time for us to seek further information. Therefore, list below the first definition you see of the problem:

Now ask "why," and broaden and redefine the problem once or twice in the form of "how to" questions.

For whichever definition seems best, list below your first idea for handling the situation.

Now, take a minute or so to add two or three more ideas. (Magnify, minify, rearrange, etc.)

(17)

Consider for just a moment the most important criteria. List two or three below:

Rate your ideas mentally against the criteria; decide quickly on the one idea you deem best. Write it below.

List one or two quick thoughts for improving your idea or its application.

Let's compress the process still more with another problem. Read the problem. Think about it for five minutes, applying fact-finding if possible, then problem-finding, idea-finding, solution-finding and acceptance-finding. Jot down any thoughts that seem important as you mentally attack the problem. The five headings are listed below to trigger your thoughts. Remember, you have only five minutes to reach a decision.

Your roommate, who is out for the evening, has received a luscious-looking cake from home. Since you customarily share such good fortunes, and you are hungry, you help yourself to a piece of the cake. Your roommate returns with three other friends and announces: "Let's cut the cake my mother sent me for my birthday!" You had forgotten all about your roommate's birthday!!!!! And besides you spoiled the cake!

Fact-finding
Problem-finding
Idea-finding
Solution-finding
Acceptance-finding

My decision:

This time, see what you can do in only three minutes!

For the past week, your neighbors have had a broken T. V. and have been watching a number of shows on your set. At the supper table, you start to tell your parents EXACTLY how you feel about the "intrusion" and "free loading." Your parents get very uncomfortable, but their attempts to silence you only make you more unreasonable. All of a sudden your eyes pick up the startled face of your neighbor's teenager who has been sitting in the next room, watching T.V.!

Fact-finding
Problem-finding
Idea-finding
Solution-finding
Acceptance-finding

My decision:

(22)

On this problem, take two minutes only.

Your friend invites you to a "home-cooked" dinner. You are delighted. When the meal is ready, you find yourself confronted with the one food you simply cannot tolerate -- even to the point of "pretending" or nibbling.

My decision:

(23)

People generally seem more concerned with solving problems in the same way as they did before, but making fewer mistakes each time, rather than with trying to find new and better ways to solve them.

On each of the following three pages, take one minute only before you write your decision about the problem presented. Try to redefine the problem immediately -- almost automatically. Then force at least three or four alternatives. Choose the one that seems to suit best. If you have time, add an idea or two to improve its application.

Your friend returns from vacation with a package for you, and insists you open "the gift I brought you." You open the box and see a large price tag on top of your gift. It reads "On sale - 59¢." Your friend almost snatches the box from you and then doesn't do a thing but stare.

My decision:

(25)

Asked to give a verbal report on "Individual Differences in Human Personalities," you decide to trace the results of a lack of brother-sister relationship in the family group as a factor in personality development. Your paper takes the "plight" of the "only" child quite seriously and in rather an unhappy light. As you get up to deliver your talk, you hear the instructor giving guidance to a student who has been out sick. The teacher is saying: "No, don't bother with the 'only' child theme -- it's overworked. I am an 'only' child myself and I'm worn out with all those theories."

My decision:

(26)

You have invited your date to a concert. It took two weeks to save enough money for the evening. You arrive at the concert, an hour's drive from home, just when it is about to begin. Suddenly you realize that you left the tickets at home.

My decision:

CONCLUSION

You have now applied the creative principles and procedures of this course in a speeded-up, almost automatic manner -- with and without writing out your intermediate thoughts between problem and decision. Early in the course, you worked on problems and challenges in a "slow motion," sometimes unrealistic way, in order to observe the process more closely. In later sessions, you were given more and more opportunity to adapt the dynamic process to suit your own needs for the particular problems you faced.

Once a person has re-discovered and harnessed his imagination he may no longer require "road maps" to guide him in its use. He may find he needs only to maintain his openness -- to "stay loose." We hope you have experienced this greater familiarity with your imagination, and that as a result you have derived (1) a greater degree of self-realization and self-fulfillment; and (2) a greater effectiveness in decision-making regarding goals, challenges and problems of which you are increasingly aware.

Now you are on your own! It is your mind versus your environment! Some things you may want to change; others you may feel you should accept. The choice may be difficult; but it is yours to make!

Creating may be frustrating, it may be discouraging; but creating is also fun, it is exciting, it is challenging. It may be all these things, but it can be rewarding in the end.

"It is a great world, waiting for the exploring hand and the observing mind. It is in your hands. You are making the world itself."

Robert P. Crawford
Author-Educator

"Think a bright future -- plan for it -- and you will have it."

Charles Kettering
Engineer-Inventor

Spend as much time as you still have available on this and the following page.

Briefly describe a problem that once necessitated a "snap" decision on your part -- one where you made a "habit" decision. Tell what your decision was. Then tell what you might do now if confronted by the same situation.

Use other side if you need more space.

Repeat the exercise on the previous page for another past-problem you recall.

QUESTIONNAIRE

1. Please jot down your immediate "off-the-top-of-the-head" reaction to this session?

2. Was your progress through the session encouraging to you?

3. Did anything discourage you as you proceeded through the session? If so, what?

4. Did you create any ideas that were especially pleasing or satisfying to you in any of the exercises?

5. Were you able to apply the general methods you learned in the course in the later exercises in the session?

6. Compared to other sessions, how would you rate this one?

Check one:
The best! ____
Among the better ones ____
Average ____
Among the poorer ones ____
The worst! ____

7. Rate each of the eight problems as Excellent, Good, Fair, Poor, Terrible

Page 2 -- important business-letter ____
13 -- wet rubbers ____
20 -- roommate's birthday cake ____
21 -- neighbor's broken T. V. ____
22 -- "home-cooked" dinner ____
24 -- 59¢ gift ____
25 -- "only child" -- class report ____
26 -- concert date ____